Summary of DTRA's Ninth Annual International Conference on Controlling Arms

Globalization of the Security Environment

May 30 - June 2, 2000

Defense Threat Reduction Agency

PREFACE

Globalization of the Security Environment is a report on the presentations and discussions of the Defense Threat Reduction Agency's Ninth Annual International Conference on Controlling Arms. The conference is organized each year to provide a multinational forum for topics pertaining to policies, technologies, and operations of arms control, including treaty arrangements, cooperative threat reduction, and proliferation prevention and response. The 2000 meeting was held at the Waterside Marriott Hotel in Norfolk, Virginia, from May 30 to June 2.

This report is a summary of the conference sessions, based on rapporteurs' notes and, in some cases, written material provided by the presenters. The speeches by the Honorable John Holum, Mr. John C. Gannon, and Dr. Jose Mauricio Bustani are presented verbatim as furnished by the speakers themselves or their respective agencies.

The views presented here are those of individual conference participants; they do not necessarily represent the views of the Defense Threat Reduction Agency or the Department of Defense.

Aija Straumanis, Felicia Eversole, Lynn Huizenga and Jerry Stockton of DynMeridian edited this report. The rapporteurs were Dan Mack, Jim Luetkemeier, William Haas, David Kerner, Robert Stevens, Deborah Ozga, Larry Karch, James Scouras, and William Golbitz. The editors wish to extend their appreciation to Amy Pedersen for her editorial and substantive support.

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OVERVIEW
Globalization of the Security Environment

Throughout the last four decades arms control has been promoted and applied as a diplomatic instrument of statecraft, a political framework for engagement, and a tool to limit, reduce, or eliminate an array of potential and actual security threats. The application of arms control is driven by security, economic, and political factors, which changed drastically at the end of the 20th century. New realities shaping the international security environment must be recognized if arms control is to continue to play a vital role in U.S. national security policy. The 2000 International Conference on Controlling Arms addressed the global security environment now that we are in a new millennium. This global environment has significantly affected the world community since the 1999 Conference on Controlling Arms, which examined the next generation of arms control agreements to address the challenges facing the arms control community as a result of new realities in technology, international security, and regional instability.

Globalization refers to interrelationships and impacts of the challenges faced in various arms control efforts. In order to explore the impact of recent events upon arms control regimes and the dynamic of arms control in today's environment, the United States Defense Threat Reduction Agency (DTRA) held its Ninth Annual International Conference on Controlling Arms from May 30 to June 2, 2000 in Norfolk, Virginia. Approximately 325 individuals from 14 countries attended the conference, representing government, military, industry, research and development, and academic communities.

The 2000 conference theme was *Controlling Arms: Globalization of the Security Environment*. The conference explored the impact of recent events upon the arms control regimes and the dynamics of arms control in today's environment. This year's event incorporated a broad range of international perspectives and included numerous foreign participants probing arms control aspects of international relations and the effects of recent arms control developments on other regions of the world. Discussions spotlighted the proliferation of long-range ballistic missiles and the challenges to the Nuclear Nonproliferation Treaty (NPT) and Biological Weapons Convention (BWC) regimes, as well as the ongoing revolution in technology and the emergence of non-governmental organizations (NGOs) as a factor in the political decision-making process. The conference speakers aimed to identify solutions to the current arms control challenges. Alternative approaches were sought for enhancing security and stability in order to address threats derived from weapons of mass destruction (WMD) proliferation and terrorism. New roles were also considered for utilizing technology in threat reduction. International organizations were examined with a view to identify institutional visions and potential contributions to arms control. National Missile Defense (NMD) related issues were reviewed in regards to their global implications.

The conference theme was highlighted in the opening remarks by Dr. Jay Davis, the Director of DTRA. He noted that this year's event incorporated a broad range of international perspectives and included numerous foreign participants who discussed arms control in international relations and the effects of recent arms control developments in other regions of the world. Dr. Davis noted that recent events impacted the nature and dynamics of the arms control environment. He called

on the audience to raise questions in the plenary and panel sessions and provided a list of questions for audience consideration.

The keynote speaker, the Honorable John Holum, Senior Advisor for Arms Control and International Security, U.S. Department of State, focused remarks on the relevancy of arms control as the new security environment continues to evolve. Arms control has contributed to security in the following areas:

- Bilateral agreements resulting in the reduction of strategic forces
- Unilateral steps such as those undertaken by Presidents Bush and Gorbachev in 1991
- Multilateral efforts including the Chemical Weapons Convention (CWC), the Comprehensive Nuclear Test-Ban Treaty (CTBT), and the indefinite extension of the NPT
- And other cooperative efforts, including U.S.-Russian programs enhancing the security of nuclear materials and the safety of nuclear reactors.

Mr. Holum stated that we live in an era of mounting challenges with WMD and missile technology increasingly accessible and to some apparently irresistible. Therefore, it is important to embrace all steps that can promote stability. He suggested 10 broad steps and considered calling them principals for arms control in the new millennium. However, he decided to refer to the steps as observations and allow the audience to decide whether the steps rise to the level of principles. *(A transcript of Mr. Holum's address is located at the end of the overview section).*

Mr. John C. Gannon, Chairman, National Intelligence Council, delivered the featured after-dinner speech in which he addressed the interplay between globalization and international security. Globalization, or more precisely the global economy driven by information technology is in the U.S.'s best interests since the U.S. has a technological advantage in the global market. U.S. national interests are increasingly tied to the dependence on global networks that ensure the unrestricted flow of economic, political, and technical information, as well as people, goods, and capital. In the years ahead, globalization will provide humankind, often led by the U.S., with the opportunity to improve the quality of life across the global community.

But, there is a flip side to globalization. It will be accompanied by economic volatility caused by political and security implications due to inequalities of income and a growing threat from multiple, relatively small scale WMD programs that have the capability of launching a surprise attack. This broadens the U.S. scope of security concerns beyond WMD-capable countries like Russia, China and North Korea. Mr. Gannon focussed his remarks on the changing security environment. *(A transcript of Mr. Gannon's remarks is located after the panel 2 section).*

During the luncheon address, Dr. Jose Mauricio Bustani, Director General, Organization for the Prohibition of Chemical Weapons (OPCW), offered insight into the relationship between globalization and the multilateral arms control process. Does multilateralism — as opposed to unilateral or bilateral action — work effectively in the area of arms control and disarmament? This question has become the central issue in the debate over the future of arms control, particularly following the U.S. Senate's rejection of the CTBT. Dr. Bustani pointed out that there is a continuous debate over whether multilateral arms control treaties or unilateral actions are more effective. The debate has been part of

the wider consideration of the relationship between global disarmament and other non-proliferation strategies, such as technology control, enforced disarmament or regional agreements.

While much has been said about the failure of multilateral arms control agreements, little has been said about the few but notable achievements. Dr. Bustani's goal was to redress the situation by pointing to one particular success story from the OPCW. His aim was to demonstrate to the audience that the OPCW's experience confirms that multilateral disarmament can work and that it can provide a guide for the establishment of other multilateral disarmament regimes beyond the chemical area, particularly in the nuclear and biological areas.

In the first plenary session, *The Complex Environment for Controlling Arms*, panel participants explored the impact of recent events upon the arms control regime. Speakers presented their thoughts on the nature and dynamics of arms control in today's environment. Emphasis was placed on the evolving complexities in the arms control regime and in particular the looming issue of NMD. Efforts were made to encapsulate the differences in regional perspectives on arms control. Some of the noteworthy questions addressed by the panelists included: What effects have changes in the political environment had on the arms control regime? What are the implications of the recent difficulties in achieving arms control agreements on the sustainability of agreements already in existence or the success of those currently under negotiation? Are current U.S. arms control policies appropriate for the present environment?

The plenary session indicated that there are continuous opportunities and challenges in arms control and disarmament. In many areas around the world individuals aim to maintain their weapons — security being an alien concept in many parts of the globe. The challenge for arms control advocates in the new age is to firmly anchor arms control measures that both increase stability while decreasing weaponry levels.

The second plenary session, *Missile Proliferation in the New Millennium: Exploring Options for a Changing Environment*, examined the new trends in missile proliferation and the ability of the architecture that is currently in place, mainly the Missile Technology Control Regime (MTCR), to meet the emerging threats. Since missiles serve as delivery means for WMD the U.S. has been concerned with missile proliferation for several decades. In the United States over the last eighteen months counter-proliferation has focused more attention on protection in addition to the traditional path of prevention.

The plenary session addressed how an NMD system served to counter ballistic missile threats and the surrounding controversy. The case for an U.S. NMD was justified by an assessment that the ballistic missile threat from rogue nations is rapidly emerging and the threat of massive retaliation may not serve as an effective deterrent. Russia is concerned about the viability of the current arms control regime and its ability to adapt to the demise of bipolarity and the revolution in military affairs. Questions arise whether Israel's decision to deploy defenses in the Middle East is applicable to the U.S. NMD decision. Finally, Europeans are concerned that U.S. national missile defenses call into question the U.S. commitment to multilateral disarmament.

Traditional security measures are not designed to address sub-state proliferation while law enforcement measures to combat terrorism are not suited to deal with state security issues. However, these mechanisms are complementary. The final plenary session, a

roundtable discussion on *The Future of Preventative Threat Management*, sought to identify new approaches for enhancing security and stability to meet the broad range of security threats derived from WMD proliferation and terrorism. Traditional methods used to constrain State and Non-State actors that acquire technologies to develop WMD lack effectiveness in preventing transfers to rogue actors. Third and fourth generation proliferators are now emerging as suppliers of WMD causing WMD technologies to become increasingly proliferated.

In response, enormous energy and resources are being expended on the prevention (non-proliferation) side. However, the major powers must develop requisite tools and synergistic programs in order to anticipate and influence the behavior of both State and Non-State Actors. This will affect international postures, moving from one of reaction to one of prevention, by having capabilities that are visible and enforced. Looking at some of the proliferating actors, however, there are some diplomatic trends that imply a reduction in proliferation pressures, although the future threat will undoubtedly grow worse and nations should be prepared.

The plenary session also addressed the use of threat reduction cooperation which has been implemented within a framework of bilateral agreements and discussed other governmental and NGO programs that have been adapted to decrease tensions, reduce security threats and enhance cooperation.

The panel sessions evaluated more specific issue areas under the overall theme of *Globalization of the Security Environment*, addressing arms control in a multi-polar world (Panel 1); strengthening the NPT Regime (Panel 2); exploiting the information revolution (Panel 3); non-governmental organizations initiatives (Panel 4); the Biological Weapons Convention (Panel 5); and the role of international organizations (Panel 6).

The first panel discussion, *Arms Control in a multi-Polar World* evaluated the new threats and challenges facing the post Cold War security and arms control environments. These developments have led governments to analyze the validity of traditional arms control assumptions and seek new approaches and strategies to meet their security needs. For the near future, the current environment will remain fluid and unpredictable. There are many dangers present and no simple answers. At the same time, there are windows of opportunities that offer the chance for states to prevent the situation from further destabilizing. As a global leader, the United States needs to consider its role in arms control since its actions will have consequences worldwide.

In Panel Two, *Strengthening the NPT Regime: Finding Viable Solutions* speakers addressed how the NPT regime can be bolstered and examined the options. Previously, on April 24, 2000, representatives from 187 nations gathered in New York to review the NPT. This panel, presented only eleven days after the conclusion of the historic 2000 NPT Review Conference, was timely and insightful in: conveying the importance of the historical context to the recently concluded proceedings, describing the 2000 NPT Review Conference highlights, discussing problems that existed before and after the recent conference, and dealing with two nations outside the NPT framework — India and Pakistan.

In stressing the importance of the NPT, one speaker quoted Prime Minister Tony Blair, Chancellor Gerhard Schroeder, and President Jacques Chirac who wrote for a *New York Times* editorial in October 1999: "Nuclear proliferation remains the major threat to world safety and that is unlikely to change in the foreseeable future. The most important weapon

in combating this threat is the NPT." Clearly, the world is a smaller place because of emerging and available technology, which guarantees the absence of absolute security for all nations. The panel speakers would assert that interlocking agreements — the NPT included — are the preferred alternative.

Technology was the topic of debate in Panel Three, *Exploiting the Information Revolution: Better, Faster, Cheaper Verification*. The theme for this panel session was opportunities for technology in arms control and the risks and challenges.

The history of arms control in many ways is linked with the industrial and scientific revolution and its acceleration in the beginning of the last century. Technology is the core subject matter of arms control history, playing an important role as a tool of arms control. Many discussions have been made of historic importance in the development of concepts such as national technical means of verification. We are in an age of globalization, where the growth of technology is asymptotic and spreading widely around the world. This creates two opportunities for examination: what are the implications of this incredibly rapid advance and spread of technology as a subject of arms control and arms control in a non-conventional world.

National technical means of verification and sensitive sources and methods have permitted arms control advances in recent years; however, many of these tools are now commercially available and widely used. There is a dichotomy between public and private policy and implementation. The role of NGOs has been expanding and growing in the formulation and implementation of policy. Arms control traditionally has been confined to a narrow government national security community. Panel speakers addressed the new technological opportunities in arms control along with the challenges.

The role of Non-Governmental Organizations was addressed during Panel Four, *Non-Governmental Organizations Initiatives and the Focus on Human Security*. The international community of nations, governmental, and NGOs are concerned about the worldwide flow of small arms and light weapons (SA/LW) as well as the control and ban of landmines and weapons of mass destruction. A number of NGOs have formed coalitions, such as the International Action Network on Small Arms (IANSA), to further their causes. IANSA's goals, memberships, and tactics bear a strong resemblance to the International Campaign to Ban Landmines (ICBL)—the NGO Coalition organization largely responsible for the December 1997 Ottawa Landmine Treaty. As a result, traditional arms control, aimed at redressing military balances or tensions between states, has been supplemented by a parallel process aimed directly at alleviating human suffering.

Questions addressed by this panel includeæHow are national security interests affected by NGO advocacy of arms reductions on humanitarian or moral grounds? How well have these NGOs accomplished their goals? Should they be viewed as a temporary phenomenon or the wave of the internet connected future? Can good intentions get in the way of good policy?

Panel Five addressed the topic, *Biological Weapons Convention: Is a Norm Building Regime as Good as it Gets?* The basic tenant of the panel was the possibility of achieving a BWC "Basic Protocol" of non-controversial provisions, while isolating the most contentious issues in the text for future resolution. Traditionally, once an official document is reopened for negotiation the entire document is opened, requiring suspension of the treaty.

There are a number of current pivotal issues that have not been agreed upon between States Parties and there is no prospect for agreement before the next BWC Review Conference (REVCON). The issues include types of visits and investigations (and attendant verification rights), triggers and procedures, and lists of agents. Although these issues are highly contentious, there is a remote possibility that consensus can be reached to enact basic agreed upon provisions within the current Protocol text.

Other panel members discussions included Protocol verification and compliance measures and impacts on bioterrorism.

The final panel session, *Implementing Big Treaties: The Growing Role of International Organizations* examined the role of international organizations in arms control. The rapidly changing post Cold War environment which has been characterized by globalization, advances in high technology, shifting international alliances and a surge in proliferation threats has brought the role of international arms control organizations into the spotlight. These organizations are taking on new and greater responsibilities but also face serious challenges in meeting the needs of their member states. In addressing these challenges, efforts will be needed on both the parts of the member states and the international organizations.

The panelists all agreed that the role of international organizations has changed over the past few years and will continue to do so in the near future. In going forward, international organizations need to focus on ensuring that they continue to provide quality services. On the other hand, States should reevaluate the role that international organizations play in their security structures and they should consider whether the support given to these organizations is sufficient to meet the growing demands placed on them. They also need to put more effort into addressing some of the key challenges facing international organizations including the issues of universality and compliance.

Several overarching themes emerged from the conference discussions:

- Globalization. Globalization should imply an increasingly multilateral arms control process, but is multilateralism functional for arms control? In fact, globalization broadens the security considerations of the U.S. beyond Russia and China, while leading to greater economic volatility, income disparities, and greater scope for small scale WMD programs to disrupt the world order. The U.S.-Russian Cooperative Threat Reduction (CTR) program is difficult to conceive of in a multilateral context. Moreover, as globalization proceeds, the interests of different countries will necessarily diverge, steadily increasing the difficulties of moving forward with agreements. States refrain from entering multilateral initiatives for many reasons ranging from the lack of the weapons in question to domestic politics to the desire to proliferate. With the development of international law and NGO participation in implementation, movement from multilateral to universal may be enhanced, but the impact of globalization on arms control remains far from clear.

- Terrorism. There is a rising level of concern, particularly in the U.S., about nuclear, biological, and chemical (NBC) terrorism. Terrorism is a global threat and effective responses must also be global. When the Berlin Wall fell, the Soviet Union collapsed, and the CWC was signed, terrorism was perceived as a minor and fading threat. A decade of incidents has raised concerns and doubts. Even before treaties become universal, can their institutional and political framework be employed for the establishment of additional links and coop-

eration between national anti-terrorism agencies and disaster relief organizations?

• Economic Interests versus Nonproliferation. Security rationales for arms control are overshadowed by other national agendas, particularly economic ones. The MTCR and Australia Group export controls have been attacked as restricting less developed countries, while both the NPT and BWC contain explicit statements of a commitment to assist economic development. The economic imperative is a factor in missile proliferation and economic issues can only be expected to impede arms control efforts. Mechanisms to reward good citizens and penalize bad actors are an ongoing issue, but are themselves subject to criticism as means of economic imperialism.

• Political Flux. The existing arms control structure, both globally and within the United States, is a legacy of the Cold War. It was founded upon political blocs that are cohesive and share certain overriding security interests. The arms control process is struggling to adapt to the fragmentation of political blocs and former states, the rise in ethnic identification, and the growth in international and non-governmental organizations. Long term arms control agreements are difficult to negotiate or maintain in an environment of economic and political instability.

• National Missile Defense. The domestic U.S. debate over deploying an NMD system has ramifications throughout the arms control community. Fears of American isolationism, a missile defense arms race, and a possible collapse of strategic arms control processes are leading to explorations of possible alternatives or supplements to NMD deployment, such as enhancing the MTCR.

• Relevance. Historically, arms control has been perceived as successful because arms control has stabilized the relationship between the U.S. and Russia, eliminated large scale CW and BW research efforts, slowed the proliferation of nuclear weapons, and eased tensions between nations, particularly in Europe. The process has contributed to the perceived safety and security needs of virtually all states. With the collapse of the Soviet Union and the economically driven reduction in Russian military strength, Armageddon has become much less of a possibility. Accordingly, many countries now perceive themselves as having far less of a stake in the preservation of and compliance with arms control agreements. This disengagement and the steps necessary to combat it have consequences for the NPT and MTCR agreements specifically, and for all nonproliferation and arms control agreements generally.

• Technology. Arms control negotiators are generally from the policy community and not necessarily cognizant of emergent technological solutions. Since treaty modification for the introduction of new technology is difficult, emphasis must be placed on utilizing commercial technology or marketing specialized technologies to both negotiators and treaty partners. The number of multilateral treaties employing some form of inspection or monitoring, the rise of transparency regimes, and the sheer increase in the number of inspections all suggest that a change in the way technology is utilized is necessary to reduce operational costs, enhance confidence, and speed inspections.

The tenth conference in the series will be held in Norfolk, Virginia, from June 4 to June 7, 2001. The DTRA annual conference has become an important venue for the international discussion of arms control, nonproliferation, and threat reduction, and the organizers are committed to maintaining the acknowledged excellence of the participants and the diversity of affiliations and views.

KEYNOTE ADDRESS

The Honorable John Holum,
Senior Advisor for Arms Control and International Security,
U.S. Department of State

I want to share some thoughts on keeping arms control relevant as the security environment continues to evolve in new and unpredictable ways. Arms Control has contributed immensely to security, whether through bilateral agreements to reduce strategic forces, unilateral steps such as those taken by Presidents Bush and Gorbachev in 1991, multilateral efforts such as the CWC, the CTBT, or the indefinite extension of the NPT or through other innovative measures, such as our ongoing efforts in Russia to improve the security of nuclear materials and the safety of nuclear reactors.

The world has relied on arms control to reduce threats and introduce stability into otherwise volatile environments. Nevertheless, in the aftermath of the 1998 tests in South Asia, and of course the Senate's refusal to ratify or provide advice and consent to ratification of the CTBT, some question the value of this discipline. Indeed, after the Senate's CTBT vote, some proclaimed with no lack of hyperbole that the vote signified nothing less than the end of arms control.

Some feel the Clinton Administration consideration of National Missile Defense portends the same fate from another direction. Are the critics right? Is there still a useful stabilizing role for arms control or has the enterprise become obsolete and so highly politicized that progress in no longer possible. Well, that is emphatically not my view. We live in an era of mounting challenges with WMD and missile technology increasingly accessible and to some apparently irresistible. It is more, not less important to embrace all steps that can promote stability. And towards this end, I would suggest 10 broad messages. I thought of calling them principals for arms control in the new millennium, but that seems a bit grand. I'll call them observations and let you decide whether they rise to the level of principles.

First, a reminder of what works. Arms control must continue to have as its core, as its preeminent goal the enhancement of security. I won't dwell on this because it's obvious certainly to this audience, but there are places where it needs elaboration. The essential point is that we don't do arms control as a morality play or as a favor to others. We do it when it serves our security, by limiting threats to our territory, our people, and out interests in the world.

Second, the security rationale for arms control needs more prominence globally. It gets lost in two ways; the first is when other agendas get in the way. Negotiations to strengthen the biological weapons convention are dragging in Geneva, in part because some non-aligned states insist that an exchange for a stronger BWC, we should be prepared to weaken export controls in the Australia group. To sharpen one tool by blunting another is not a good bargain and we won't take it. But, it illustrates the problem, that multi-lateral arms control too often is considered a zero-sum struggle among competing political or economic interests, instead of a plus-sum endeavor in which all states are after and all gain security. The security dimension is also overlooked in expectations of what can be attained.

The end of the Cold War has increased international pressure for faster disarmament.

We cannot negotiate agreements that are not yet ripe, or go beyond what we believe is our national interest solely on the basis of demands. Now, on the other hand, about two weeks ago, a little less, in New York we completed a review of the Nuclear Non-Proliferation Treaty where both of these tendencies were very much in play. The conference occurred in a strained environment to say the least, with the tensions focussed on the United States. The CTBT was voted down and strategic arms control slowed down with new ABM issues intruding. Yet the conference was a success in the end, producing a reasoned document to which all members could agree. Of course I attribute that in a fair part to the skill of our interagency team in New York led by Ambassador Norm Wolf, one of the most gifted and persistent practitioners of multilateral diplomacy. Russian ratification of START II and CTBT on the eve of the conference also helped. But I think success was due in large measure to the realization of the membership that the treaty is profoundly in all of their security interests. No one has an interest in the end in bending it out of shape through misuse as a lever to pry from the nuclear weapons states speedier disarmament than their security interests allow. Perhaps the NPT Revcon will provide a useful precedent.

I hope that spirit will carry over into the Conference on Disarmament and the Biological Weapons Convention as well, because the credibility of those venues is very much on the line.

Third, we need specialized approaches for the hard cases. Generally speaking, states that join treaty regimes comply with them, but some other key states, as experience tells us, do not join, and others cheat. I don't have any magic or guaranteed formula for successæthat's why these are called "hard cases": to distinguish them from the easy things like the test ban and START III. But I must say that I am skeptical of one-size-fits-all concepts that would gather all of the problem countries into a room and offer the same bargain to them all, which could, for example, have us either promoting light water reactors in Iran or not supporting them for North Korea. Dealing with these hard cases is best accomplished on a case-by-case basis with concerted strategies focussed on the specific circumstances and on what unique incentives and disincentives may be available to us and to others seeking a solution. But as we've seen with Iraq and North Korea, and elsewhere, we need approaches we can sustain over the long haul and should not expect quick or cost-free results.

Fourth, we should continue the process of negotiating reductions in strategic arms with Russia. With Russia's nuclear arsenal headed downward anyway, it is tempting to ask why bother. Russia's economic woes are forcing it to reduce its weapons anyway, what's in it for us? Well, one answer is that negotiated and verifiable agreements can influence how and for how long Russia reduces its forces. Absent formal agreements, there's a good chance Russia would retain or build destabilizing systems, such as the heavy land based MIRVs that were banned from START I and II. Absent formal agreements, both sides would lose verification, which we need more of, not less. And absent formal agreements, we would be dependent on something we earnestly hope is temporaryæRussia economic distressæfor long term stability. Conversely, a Russian government putting security first might spend sums they can't afford on a strategic buildup, thus putting democratic reform and market economics at risk.

Moreover, we should think of START in the context of steps to address other problems that are high on virtually everyone's agenda, particularly safeguards and controls on Russia's WMD materials, technology and expertise that we want to keep out of the wrong

hands. This is painstaking work, pursued by many of you, through multiple mechanisms, among them, cooperative threat reduction, the science centers, plutonium disposition, the HEU agreement, the nuclear cities initiative, and various incentives to curtail WMD and missile cooperation with countries such as Iran. If the START process were to break down, it's likely those vital efforts would suffer as well.

Fifth, once negotiated, arms control agreements should not be considered immune from reexamination. We agreed that Europe's sharply altered political and security landscape warranted adjustment in the CFE Treaty, replacing bloc limits with national ceilings and affording Russia greater flexibility in the disposition of its forces. As you know, we're making the same precise argument to Russia now regarding the ABM Treaty. The spread of missile technology and the apparent ambitions of some states for ICBM capabilities are creating a new security environment that cannot be wished away or ignored. We're working to address it on many fronts, including both prevention and deterrence, but we're reaching the stage where defense also belongs in the mix. As was done with the CFE treaty, as has been done with the ABM treaty itself, we believe it can be preserved as a cornerstone of strategic stability and that the best way to do that is to update it to account for threats that could not have been contemplated when it was agreed to nearly 30 years ago.

Sixth, we need to think realistically about verification. It's no secret that during the CTBT debate, we were on the defensive on this subject. The questions were easy and the answers were complex — not that we could detect any violation, but essentially that we could probably detect and deter any violations that could damage our security in time to respond, yet that is increasingly the case. The question is whether difficulty of enforcement is sufficient reason not to have a law in the first place. I suspect that few would argue that we should withdraw from the Biological Weapons Convention because it is unverifiable — rather, we should improve it.

More generally the standard of effectively verifiable is what we can realistically achieve, and we shouldn't pretend otherwise. In each case, we have to do a net assessment recognizing that verification will never be perfect. Are we better off with a treaty and its verification regime than we would be without? In that context, we should weigh such questions as, will National Technical Means play useful roles? Would states that are unprepared to provide sensitive data to the United States have fewer qualms about providing [them] to an international nondiscriminatory organization? How much better can we monitor events of importance to our security than if we didn't have the treaty regime? Is our security at risk if a violation occurs and it is not detected? If we support the treaty's objective and can satisfactorily answer these questions, we probably have a regime that is in our interest to support.

Seventh, arms controllers need to be opportunistic about technology. A good example is the IAEA's strength and safeguards protocol. It was inspired, as you know, by discovery of active nuclear weapons programs in Iraq and North Korea; in the latter case because technology was better than North Korea thought. But their protocol also became possible because of advances in technology, giving the agency more capability with broadened access to detect activities at undeclared sites.

As the exhibits associated with this conference attest, there is abundant potential to be explored: remote unattended monitoring; increasingly sophisticated data fusion and analysis techniques to help manage and access rapidly accumulating data; more rugged,

portable, and user friendly verification equipment. Arms control should also build on advances in enabling technologies and basic sciences, expanded interoperability between system and comprehensive signature libraries, and phenomenology studies. So I remain an enthusiast of strengthening the nexus between arms control and science.

Eighth, arms control increasingly has to deal with non-governmental actors. This is particularly the case for business, where treaties seek to expand inspection rights such as the CWC anytime anywhere provisions, or the enhanced inspection rights under the IAEA enhanced safeguards. The BWC negotiations are dealing with the problem right now. In negotiating such agreements, we need to account not only for security needs but commercial realities. As to policy, NGOs have of course, been forceful arms control advocates for many years. The open question is whether the Ottawa process pattern is likely to be repeated. My guess is not, but yours is just as good. In that case, as you know, NGOs took the lead in international efforts against anti-personnel land mines and would accept nothing less than a complete ban. As a result, the convention does not include most of the historic producers and users of landmines. Absolutes don't fit very well with the give and take that is required to achieve broad-based arms control results. But, NGOs nevertheless must remain a key part of the process and keep contesting our judgements about what can be achieved.

Ninth, we need to put greater emphasis on non-traditional tools such as small arms measures and confidence building to deal with regional and internal conflicts. In some parts of the world, small arms have become weapons of mass destruction. Arms control methods can help. One reason why our professional on-site inspectors keep encountering what I've heard Admiral Barnes describe as pop-up missions. Among other initiatives, we want to conclude this year a firearms protocol to the United Nations Transnational Organized Crime convention to stem the flow of illicit small arms and light weapons trafficking by harmonizing global export and import policies. We're also providing assistance to ensure the safe storage or destruction of surplus stockpiles of these weapons. So we are working on many fronts and we will continue.

This leads to a tenth and final observation. It's critical that arms control policymaking and implementation have bipartisan understanding and support. The Senate CTBT vote suggests that the bipartisan tradition of arms control has eroded. It needs to be restored. That is the basis of our ongoing efforts, aided by former Chairman of the Joint Chiefs of Staff General John Shalikashvili, to quietly work the issues on CTBT and, we hope, set the stage for resumption of Senate considerations at some point. In the same vein, I heartily welcome and have done my best along with Deputy Secretary Strobe Talbot to cooperate with the new National Security working group in the Senate, co-chaired by Senator Cochran and Senator Berg. We brief them regularly, including them in our discussions on the ABM treaty and START III.

Members of Congress are stretched thin. It's reason for celebration when they're prepared to probe deeply into not only our policy conclusions and diplomatic strategies, but also our underlying reasoning about arms control roles. At a minimum, we can find a core understanding, so we'll be dealing on a basis of reality, versus caricatures. Perhaps the National Security Working Group can be a worthy successor to the Arms Control Observers Group in ensuring that when treaties reach the Senate, they have a basis of informed support. Well, on the basis of what I've said, I assume you'll discern that in rocky times for arms control, I've lost none of my enthusiasm for these

endeavors. But in a group like this, that's an unexceptional view.

You're fully aware that the obvious and easy things were all done long ago and now we're deeply into heavy liftingæthe myriad and mounting challenges of implementation; increasingly sophisticated unsavory characters and regimes; advancing techniques of misdirection and concealment; the cases whereby in some lights proliferation looks reasonable;the risky side effects when arms control succeeds and arms are taken apart; the absolute certitude both of those who think we are going too slow and those who think we are going too fast. Yet, you persist and devote your time to understanding this mission more fully and doing it better. For you recognize this work as central to national and international security and to the day-to-day safety of people around the world. For that you have my admiration, my heartfelt thanks and my best wishes for an enormously successful conference.

PLENARY I
The Complex Environment for Controlling Arms

Chair
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Senior Advisor for Arms Control and International Security

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Dr. Jay Davis
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Mr. Robert McDougall
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Introduction

In this session panel participants explored the impact of recent events upon the arms control regime. Emphasis was placed on the evolving complexities in the arms control regime and in particular the issue of NMD. Efforts were made to encapsulate the differences in regional perspectives on arms control. Some of the noteworthy questions addressed by the panelists included: What effects have changes in the political environment had on the arms control regime? What are the implications of the recent difficulties in achieving arms control agreements for the sustainability of agreements already in existence or the success of those currently under negotiation? Are current U.S. arms control policies appropriate for the present environment?

Keeping Arms Control Relevant

For arms control to be effective in this age and beyond, it must be relevant. To date, arms control measures have contributed immensely to U.S. security and have had a stabilizing effect on the relationship between the U.S. and Russia — to include the former Soviet Union. In a broader context, arms control measures have had a salutary effect on most of the world either directly or indirectly. Thus, past arms control successes do offer significant encouragement for future successes that will make even greater contributions to stability and security. With several decades of arms control successes as background, it can now be said with some confidence that it is more important than ever to advance on multiple fronts. However, future promises of success can only be fulfilled if the process of arms control remains relevant to the greater security environment of participants. Certainly arms control negotiations, while they may proceed, cannot be successful if they do not take into account the vital concerns of participants for security. Thus relevancy is, now more than ever, a requirement for future arms control successes.

With relevancy as the most important standard for measuring the efficacy of arms control measures, there are a number of specific aspects or facets that should also be considered. The first among these is that arms

control must have at its core the enhancement of security. To be viable, arms control negotiations must not proceed out of a sense of morality or as a favor to allies, but as a deliberate and serious attempt to enhance national security. Attempts at arms control that do not have enhanced security at the center ultimately do more harm than good as they tend to poison the well for proposed measurements that are better thought out and have a higher probability of success. This leads into the conclusion that the security rationale for arms control must be given greater prominence globally. Attempts by some to agree to strong security measures in one arms control forum in exchange for weakened security measures in other fora cannot be abided. Arms control must be viewed as something better than a zero sum game whereby all participants see themselves as winners.

One clear problem with any worthy arms control measure is what to do about states that will not join in, or which join in only to cheat on the promises they have made. These are hard cases and there are no assurances that some states can ever be brought into compliance. These situations call for specialized approaches wherein the special interests of problem states are engaged through unique incentives or disincentives particular to their interests. On a case-by-case basis, it may be possible to achieve compliance by such problem states if they perceive a net benefit to themselves based upon their own calculus. In any case, arms control approaches to problem states need to be sustainable over long periods of time so there is no perception that recalcitrance will yield greater benefits.

As the premier arms control forum, involving the U.S. and Russia, it is important to continue the process of reducing nuclear arms under START for many reasons beyond the most direct benefit of lessening the possible outbreak of nuclear war, either through accident or calculation. Success in START will tend to improve the economic vitality of Russia by reducing resources now devoted to maintaining an increasingly costly level of offensive nuclear weapons. Economic vitality will in turn give Russia considerably more resources for improved standards of living and heightened incentives to resolve conflicts with neighboring states in a peaceful manner. Moreover, START provides a high-confidence model for proceeding with arms control negotiations in other matters of high importance. Success breeds success in arms control and the best vehicle for potential success in the present arms control environment is the START process.

An important aspect of arms control agreements in force is their continued relevancy. Once negotiated, agreements should not be considered immune to change through renegotiations. Instead, arms control agreements should be viewed as having a more dynamic nature that allow for adjustments to account for unforeseen threats and other changes in the overall environment that lessens security. Clearly, any arms control agreement that is seen as having a negative slope with respect to security is not a healthy agreement and all participants should be concerned for such deterioration.

Always strongly coupled to security and thus to relevancy is the issue of realistic verification of arms control agreements. While the associated questions are usually easy, the answers are almost always complex. The relevant question is not whether any cheating can be detected, but whether cheating of a security can be detected in sufficient time to offset any military advantage before it can be brought to bear. This is the standard of effective verification which participants must analyze and decide upon. In the end, verification is never perfect and potential participants to arms control agreements must do a net assessment as to whether they

are better off in a specific treaty verification regime or with no arms control agreement.

Continuing advances in science and technology offer important opportunities for improving the methods of arms control treaty verification. Verification thus becomes more probable with advances in the technology allowed to participants for monitoring purposes. Treaties that were previously unverifiable may become verifiable and treaties with weak verification may be strongly verifiable if arms control proponents are opportunistic with respect to the adoption of new technologies. In general, arms control should attempt to strengthen the association between verification and technology.

Though the presence and even active participation of NGOs in the process of arms control is an unwelcomed complication, their presence cannot be easily dismissed due to the commercial connections between businesses and armaments. In this area, not only must security be accounted for, but certain protective efforts must be made against industrial espionage. NGOs can further complicate the general process and prospects for arms control agreements by initiating efforts that are more emotionally driven and less connected to conventional security issues for most countries.

The use of non-traditional tools in arms control can also be relevant due to their potential for improving security in regional conflicts. In several ongoing conflicts, fighting continues among tribal-like groups mostly because small arms are plentiful and less as a result of any state-to-state opposition. Decreased fighting and thus enhanced security is a more likely result from decreased arms shipments than by any set-piece negotiation among participants.

Finally, it is important for arms control to remain a bipartisan issue within the U.S. Congress. Partisan congressional views of specific arms control initiatives effectively block any meaningful progress where opportunities for achieving greater security may actually be quite good. Partisan disputes that break into the open are particularly detrimental to the entire arms control process.

The Continuing Transition of U.S. Military Policy

Though the end of the Cold War has receded almost a decade into history, U.S. military policy, with its heavy emphasis on strategic nuclear weapons, is still in transition. The U.S. has not seriously began to rethink the precepts that undergirded U.S. forces during that time. The first precept was that since strategic missile defense was not possible, all deterrence of the Soviet Union against a strike on the U.S. homeland would rest in strategic offensive nuclear forces that could be launched on a moment's notice. Deterrence under these circumstances was uncertain, but this was the only alternative under the circumstances.

The second precept was that the U.S. would rely on the first use of non-strategic nuclear weapons in regional areas. This precept addresses the need to counter the superior conventional warfare capabilities of the Soviet Union should the conventional forces of the U.S. and its allies fail to stop Soviet aggression. Deterrence under these circumstances was also uncertain, but it was the alternative that the U.S. and its allies willingly chose to avoid the staggering economic costs of vastly expanded conventional forces.

The threat situation has now changed fundamentally. For the present and immediate future, neither China nor Russia poses a threat to the U.S. homeland, though they could pose threats at some point in the undefined future. And, neither Russian nor Chinese conventional forces constitute any great dan-

ger to U.S. Allies. However, there are emerging WMD missile threats to parts of the U.S. homeland and to U.S. Allies from a small group of lesser-developed countries with weak and fragile economies. Some of these countries have scores to settle with the U.S. and hold both animosities against their neighbors and regional power ambitions.

Yet, in the face of this changed threat, the U.S. still maintains a strong semblance of the strategic offensive nuclear forces of the Cold War era. More importantly, the U.S. still has no missile defenses to counter missile threats posed by countries other than China and Russia – i.e., the group of lesser countries with uncertain economies and limited resources who are impelled to undertake long-range missile and WMD programs. Such countries could potentially gain the capability to successfully launch a few long-range missiles with WMD warheads. This emerging threat from third parties is the highest national security threat confronting the U.S.

Now it should be noted that these lesser countries are acquiring long-range missile and WMD capabilities as either leverage with major countries, or to improve their economic situation, or both. These lesser countries do not contend that their new missile-based WMD capabilities are for war-fighting purposes, especially with major nuclear powers such as the U.S. and Russia. However, there is the distinct danger that a lesser country, in time of crisis, could persuade or delude itself into believing that it possessed considerable leverage over U.S. actions based on a small missile-based WMD capability. This might be particularly so if that country thought it had the quasi-backing of either China or Russia and if the U.S. possessed no credible defense against a small missile attack.

Thus the U.S. strategic nuclear forces which deterred the Soviet Union during the Cold War era now fail to provide a certain amount or type of deterrence against this new threat — ambiguous and problematical as it may be. This growing gap in deterrence can only be closed by credible missile defenses specifically oriented on the threats posed by these lesser countries. Moreover, the still large U.S. and Russian strategic offensive nuclear forces hinder the development of a long overdue new relationship. One that befits the non-antagonistic and growing cooperative relationship that now exists between the two Cold War opponents.

The U.S. and Russia should thus simultaneously reduce their inventories of strategic offensive weapons while being free to erect defenses against third party WMD threats. Along with these actions, both countries should continue to prevent the acquisition of WMD and long-range missile technology by lesser countries and the spread of such technology by the major powers.

The U.S. and Russia now have a golden opportunity for a logical and stable approach into a new world that is far more stable than the present one. A world that has far fewer WMD weapons, but which in turn has credible defenses which are effective against the smaller WMD threats that might be brandished by third party actors whose thinking and actions cannot be predicted as well as those of Russia and the U.S. Moreover, only in a world of fewer WMD weapons and credible defenses against small attacks from any quarter — whether by miscalculation or accident — can one even contemplate the global elimination of the WMD threat at some future time.

The time has come for both the reduction of strategic nuclear weapons by the U.S. and Russia coupled by the growth of credible missile defenses against third party missile-base, WMD threats. This transition requires a radical departure from the Cold War thinking of ten years ago and the adoption of a

forward looking strategy that reflects the new relationships that are developing between the U.S. and other major nuclear powers.

Questions about Arms Control in a Globalized World

The changing complexities of arms control in an evolving world cannot but help suggest a host of fundamental questions that require serious contemplation. In attempting to answer such questions we can better assess both the difficulties of arms control in the future and the benefits that may result. The following seven questions regarding arms control are worthy of pondering:

First, is the relationship or connection between arms control and actual threat reduction constant across periods of time? Or, does this relationship change with time for various reasons that may themselves change in importance? For example, the arms control regime seems to be evolving from one of bilateralism to multilateralism. What does this change portend for actual threat reductions?

Second, what are the long-term consequences of recent arms control treaty failures such as the CTBT Treaty, and potentially the ABM Treaty? How will these events play out in the future?

Third, do economically maturing countries have an inherent need to acquire advanced weaponry to demonstrate or validate their acquisition of the technological sophistication that matches their economic successes? Nuclear weapons and sophisticated delivery systems seem to have a fascination all their own as technological proofs for many countries and such activities clearly run counter to present and potential arms control efforts.

Fourth, are we assuming that arms control and economics are in fact permanently decoupled from one another? An interesting example is the forthcoming availability to the private sector to purchase one meter resolution photography of any location in the world. This could well be a technological driver in arms control as only governments have had exclusive use of satellite-based photography of relevant resolution for some 40 years.

Fifth, can in fact the export of technology be controlled in a world where markets are becoming more globalized and economic impacts are more sorely felt? The defense industries of countries around the world are increasingly looking to foreign sales which include technology transfer, in order to remain competitive and on the leading edge of technical developments. Will export controls always precede economic necessity?

Sixth, arms development has traditionally been considered a drain on national economies. Is there now perception or even a realization among some countries that arms development can be a driver for market-related technologies? At some point and in some areas, the development of advanced technologies — often called dual use — may produce a significant benefit in terms of a country's economical well being. Thus the true cost of arms becomes increasingly incalculable and some countries may become loath to give up pathways to advance technology.

Finally, if states cannot control people, how can states ultimately control technology? The growth of democracies around the world and the resulting decrease in limitations on travel, study, and employment put advanced technology into the minds of people who may opt to take their knowledge to other lands for pecuniary if not patriotic reasons. Any regime that attempts to closely control technology would also have to have some controls over the people who acquire the technology in their course of study and/or employment.

Globalization of the Security Environment and the Need for New Assessments

There is no lack of discussion about the problems of security in a world that is moving towards greater trade among nations and freer exchanges among peoples. In the bright light of so-called globalization, people around the world are now more interested than ever in arms control and disarmament and are sending clear signals to their leaders. The impetus for such measures surely arises from perceptions of decreasing tensions among former antagonists and from the growing hopes for amicable relations between all nations, but particularly among the nuclear-armed states.

Added to these universal hopes for peace and prosperity is the growing realization that globalization has fundamentally changed an historic relationship between military conquest and the wealth of nations. Up to about World War II, many countries believed that the surest way to increase national wealth and power was to amass greater territory. One of the quickest ways to these ends was through military conquest, which requires robust military forces capable of offensive operations beyond ones borders. Few, if any, countries now believe this paradigm to be true. The advent of technology, universal education, free trade, and market economies have proven to be far superior as wealth and power generators than what military conquest could ever achieve. Thus military forces seem necessary only for defensive purposes and possibly maintaining internal order.

However, the present nuclear armaments of Russia and the U.S. do not now match the rising expectations for peace and harmony promised by globalization. Uncertainty exists in the realm of future reductions in offensive nuclear weapons, and whether defensive systems should be allowed to develop in place. To a significant degree, the pattern and practice of past nuclear arms control agreements have frozen the U.S. and Russia in an adversarial stand-off reminiscent of the Cold War era.

Given this highly problematical situation between the U.S. and Russia, a completely new assessment is now warranted to establish goals for future arms control reductions. Such an assessment would start with a determination of what threats actually exist to Russia and the U.S. now and in the future. This would inevitably lead to the kind of arms control agreements and security arrangements needed for a stable relationship reflecting the mutual desires for an open-ended, non-threatening relationship. Such an assessment, however, must break with the past and be forward-looking.

There is, unfortunately, one new U.S. military initiative that severely complicates and endangers all attempts to complete a new assessment of what is really needed for security and stability in a globalized world. This initiative is the National Missile Defense (NMD). It jumps to a final, technically questionable, conclusion about what new system is needed to counter a minor future threat to the U.S. before all the relevant questions about existing, more serious threats have even been asked. The proposition to begin deployment of this highly dubious defensive system, at this time, is ill timed at best and ill conceived at worst.

Of immensely greater importance now is the need to decrease the levels of U.S. and Russian offensive nuclear weapons, and the need to rid nuclear weapons from emerging nuclear threats. The latter is a far better approach to the perceived future threat of rogue states developing long-range missile systems with WMD warheads.

The great danger of the U.S. pushing ahead now with NMD, or limited NMD, is

the unforeseen and highly undesirable consequences that it will surely have on nuclear states and near-nuclear states other than Russia. Nuclear weapon questions have already emerged in regional conflicts in a highly destabilizing manner. NMD will only exasperate these problems. While Russia, with its large nuclear force, would not be threatened by a U.S. NMD system, the same cannot be said of China and other nascent and near-nuclear states such as India, Pakistan, Iran, and possibly others.

A U.S. NMD system deployed now would cause China to increase its long-range missile force. India in turn, already feeling threatened by China, would be compelled to field nuclear forces sufficient to counter China's nuclear missile build-up. Pakistan, India's sworn enemy, would then deploy nuclear forces to counter India's actions. Iran, and possibly other regional states, seeing the build-up in nuclear weaponry across south Asia would feel the need to develop and deploy nuclear weapons themselves. The end result will be a far more dangerous world — even for the U.S — than what exists now.

However, if the NMD issue could be delayed and set into proper context in terms of priority and consideration, then missile defenses could be considered. Indeed, global-based missile defenses might well become both useful and stabilizing if steep cuts are first made in the offensive nuclear weapons of Russia and the U.S., and all measures are exercised to rid WMD capability from rogue countries.

Current & Future Arms Control Trends

The endeavor of arms control is thriving despite a few set backs. This is the nature of arms control and we cannot realistically expect an era where arms control forges ahead without occasional failures. It is useful to examine the following ten trends in arms in order to estimate future success.

First, there is a distinct shift from bipolarity to asymmetric multipolarity in international politics. This implies a greater importance of states and a reduced tendency to divide the world into two or three armed camps and to define neutral states as those who do not belong to one of these camps. It explains quite well the spread of weapons technology to new players. And, it also explains the rise in the number of small wars and casualties as a result of the proliferation of small arms.

Second, there is an increasing importance of multilateral measures, which have led to the use of multilateral fora to discuss arms control and security measures. Even with important bilateral treaties between the U.S. and Russia such as START, other countries are now expressing interests as "stakeholders" in such treaties due to the potential for affecting all countries.

Third, regional approaches are becoming more prominent. Part of this regional orientation is due to the rise in regional tensions and conflicts that were previously dampened by the Cold War. Regional solutions can be used as either stand-alone measures or combined as building blocks for larger solutions. Interestingly, the old Cold War regional negotiating blocks tend to be giving way to new alignments reflecting the true interests of the individual countries instead of the aims of a Cold War super power.

Fourth, there is a rebalancing of arms control and disarmament. Arms control is inherently bilateral in nature as it seeks to place controls on weapons. Arms control is also exclusive in that a country must first possess a particular weapon system to be included in the

discussions. On the other hand, disarmament is inherently multilateral as it seeks to eliminate weapons. Disarmament is also inclusive, as all countries must agree not to acquire weapons once banned. In the last ten years there has been an increased emphasis on disarmament discussions that have not excessively conflicted with arms control talks.

Fifth, there has been a trend towards the multilaterism of transparency and verification measures. This is important to ensure that promises are kept.

Sixth, there is an increasing emphasis on "lesser" weapons in comparison to WMD (e.g., small arms, land mines, etc.). This trend is occurring in conjunction with the focus on regional approaches to conflict resolution.

Seventh, there are "New Frontiers" in arms control seeking to ban or control weapons that do not yet exist. One such non-existent weapon is orbital space. The rationale here is that it is far easier to reach agreement to prevent the development and deployment of a new weapon than to prohibit an existing weapon. Closely allied with this trend is the difficult task to also place limits on emerging technology that would aid in developing such new weapons.

Eighth, a Canadian concept known as Human Security is gaining credence among the arms control community. Human Security seeks to examine the effects of individual weapon systems on individuals. It is not a challenge to traditional interstate security concepts but is a complement as it focuses on the indiscriminant and disproportionate effects of certain weapon systems on individuals and particularly non-combatants. Examples of such weapon systems are small arms and land mines that have caused many casualties in small wars over the last five decades.

Ninth, so-called Soft Diplomacy involving the participation of NGOs in arms control and security matters has increased over the past decade. Ironically, many NGOs have far more power and influence in the U.S. and Canada than in their countries of origin. Coalitions of NGOs have sometimes exerted significant political influence on a few issues with high public interest. The most recent issue being the Land Mine Treaty.

Tenth, there is a realization and agreement that traditional bilateral and multilateral fora that may have been successful or useful in the past should give way to new arms control fora if the existing structures cannot produce agreements. One such example is the increasing use of NATO as a forum for arms control.

Summary

As this plenary session has clearly indicated, there are continuous opportunities and challenges in arms control and disarmament. Many people around the world want to hold onto their weapons, both literally and figuratively. And in some cases, people have very good reasons to hold tight to their weapons — security being an alien concept in many parts of the globe. The challenge for arms controllers in the new age is to firmly anchor the fundamental need for security into arms control measures that both increase stability while decreasing the levels and destructiveness of weaponry.

The arms control environment is much broader and more invested in people's aspirations than even five years ago. Despite complexities and occasional setbacks, the world may be entering a golden age of arms control and disarmament where the phrase, "Defense Through Other Means" will be truly justified.

PANEL 1
Poles Apart? Arms Control in a Multi-Polar World

Chair
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Ambassador of Egypt to Japan

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Introduction

In this panel session, panelists discussed the post Cold War security and arms control environments that have been evolving rapidly, bringing new threats and challenges. These developments have led governments to analyze the validity of traditional arms control assumptions and seek new approaches and strategies to meet their security needs. For the near future, the current environment will remain fluid and unpredictable.

The New Security Environment

The current environment is characterized by the disintegration of traditional security structures, placing global arms control regimes under strain. In spite of a hope that nuclear weapons would disappear after the Cold War, the Indian and Pakistani tests changed world views on disarmament. Their actions as well as the continuation of clandestine efforts to acquire WMD, indicate a belief that reliance on nuclear weapons is not declining. The nuclear weapons states have also reinforced this view. Their policies are unclear as to whether their nuclear weapons are viewed as a last resort, for use against neighbors with strong conventional forces, or for regional or global domination.

US relations with Russia and China are strained in the new security environment. The United States has become a sole military superpower. NATO's action in Yugoslavia in 1999 widened the gap between Russia and the US. Russia, concerned about the declining status of its conventional force, has reevaluated the role of its nuclear weapons in its military strategy and has paid particular attention to its tactical weapons. The United States and China have conflicting visions of their roles as superpowers and as regional actors in Asia. This has led to clashes on a range of issues.

The global arms control environment has undergone wide changes in the past decade. Ten years ago arms control was a bilateral affair where the two state's objectives involved reducing large arsenals. Now, there are several genres of arms control. Arms control branched out to

encompass non-proliferation efforts including the establishment of multilateral treaties such as the CWC and the BWC as well as the establishment and reinforcement of supplier regimes such as the Australian Group. A bilateral agenda still exists, but Russia and the US are focusing on managing the decline of their robust nuclear arsenals. Under the rubric of bilateral arms controls, the United States and Russia continue to seek strategic reductions, which are not yet complete. However, reductions are also taking place under cooperative threat reduction efforts that address other aspects of arms control. These efforts include activities such as halting plutonium production, shutting down facilities, enhancing physical protection and addressing brain drain threats.

European arms control architecture has also been evolving to reinforce the interlocking institutional efforts of the North Atlantic Treaty Organization (NATO), the Organization for Security & Cooperation in Europe (OSCE), the European Union (EU) and the Western European Union (WEU). In 1994, the North Atlantic Council established a new structure to address non-proliferation and WMD. New structures have also emerged in NATO to facilitate dialogue with the Mediterranean states and Ukraine. A WMD center has been established to improve coordination of arms control, non-proliferation, disarmament and defense activities at NATO headquarters and to improve the response of the alliance to WMD threats. More recently, NATO designed a new strategic concept to address arms control issues. The EU is also making efforts to reach out into the security field in conjunction with the WEU.

The Middle East

The Middle East is a particularly troubled region. Israel's possession of nuclear weapons is unacceptable to its neighbors. Egypt has been unsuccessful in its efforts to influence Israel to agree to joint inspections and to establish a timeframe to sign onto the NPT. Egypt has also led efforts to seek a Nuclear Weapons Free Zone (NWFZ) in the region. Since 1980, Egypt has regularly generated resolutions — adopted by consensus — to the UN General Assembly (UNGA) and First Committees on establishing a Middle Eastern NWFZ. Egypt has also pursued proposals for a Weapons of Mass Destruction Free Zone (WMFZ) in the region which has attracted interest. For example, regional discussions on this topic have been taking place in the Arms Control and Regional Security (ACRS) group. In this forum, a number of confidence building measures have been suggested. The IAEA has also contributed to ACRS efforts by providing verification support for the zones. However, discussions have stalemated in part due to the closed agenda.

China in the New Arms Control Environment

China is a key player in the post Cold War environment, especially as it has been a key proliferator in the past. The West, in addressing arms control issues associated with China, will need to review how to think about asymmetries. China needs to be considered in broader terms than triad analysis. This is due to the fact that China's strategy, with regards to managing its nuclear force, is unique. Its force consists of ballistic missiles that are tipped with conventional warheads, which have the flexibility of being easily uploaded to nuclear warheads. China currently possesses 20 missiles that can reach the United States territory, while 100 missiles can strike Moscow and a considerably larger force target China's immediate surrounding area.

China is modernizing its nuclear forces. This action is not solely the result of NMD developments in the United States, but rather

due to changing security requirements, the availability of technology from Russia, the aging of China's nuclear forces and fears that forces are not effective. The direction that modernization will take is unclear because China's nuclear doctrine is undergoing a considerable revolution. Traditionally, China's conception of war was that it would be the victim of a nuclear strike for which it would need a second strike capability to retaliate. For the past quarter century, China believed that 20 nuclear weapons were sufficient to prevent crises in Korea and Taiwan. Since historically deterrence was used to constrain the compulsive behavior of the West, China now holds a negative view with regards to deterrence.

China sees its current security environment as destabilizing. The country has key concerns with regards to Taiwan, which is modernizing its military capabilities and has close relations with the United States and Japan. Despite vociferous protests from China, Japan has revised its defense guidelines with the United States and embraces missile defense for deterrence purposes vis-à-vis China. Japan has endorsed cooperation with the United States because if it does not build up its defenses in view of China's growing power, it will be accused of building a hidden offense. China is also closely monitoring developments in South Asia and Russia. India's nuclear capabilities are a concern to China; and in spite of China's recent rapprochement with Russia, the relationship between the two is complex. Russia perceives its arms reduction agreements with the United States in the context of sustaining a hedge against China's weapons build up.

Technological developments have contributed to destabilizing China's security environment. Advanced conventional weapons can now be used to attack China's nuclear silos, leaving them with no credible reply. Thus, China is considering whether its minimal deterrent is adequate. Moreover, recent events such as the potential deployment of an NMD system have heightened security concerns.

US policy of increasing deterrence vis-à-vis China, as its power rises, is unlikely to be an effective policy. Japan and other countries in Asia are very cautious about US extended deterrence. Asia is not comfortable with the concept but the region sees it as a necessary evil. For example, regional states take a moderate approach whereby they would not like relations between the United States and China to become too warm or too cold. Strong antagonisms will destabilize the region — if relations between China and the United States became too strained, Asia would be forced to distance itself from the United States — while excessively warm relations would not provide assurances to the region.

In modernizing its nuclear forces and setting arms control policies, China still has key decisions to make in regards to MIRVS — Multiple Independently Targetable Reentry Vehicles — nuclear production levels and strike capabilities in key arenas such as Taiwan. China is still considering whether it needs a more powerful strategic force than in the past or whether it wants to restore the status quo. The current debate seems to be leaning towards the former.

China has learned some difficult lessons since signing the CTBT. Several years ago China's view of the world was remarkably different since global trends pointed to peace and development. In 1995, China witnessed an emphasis on restraint, arms control, nonproliferation, fewer nuclear weapons and the United States seemed restrained while participating in global systems. Therefore, China's policies of nuclear minimalism and adhering to the CTBT were logical choices. Now, China sees Russian power declining while the US remains the only superpower. China per-

ceives the United States exercising its influence in international coalitions to execute a Brezhnev doctrine of human rights. Kosovo represented for China the culmination of the United States setting aside international rules for its own interests.

China's reasons to endorse the CTBT have evaporated therefore the country's future in the treaty is questionable since other states have resumed testing. In response to the evolving security environment, China's nuclear weapons objectives have changed and the country is moving in the direction of producing small warheads for mobile missiles. Although the country has proven the design, it is not likely that there is a high degree of confidence in the endeavor.

Missile Defense

The US pursuit of National Missile Defense (NMD) is complicating a broad range of arms control efforts — possibly revamping the Cold War. If taken unilaterally, NMD could weaken US relations with its traditional rivals such as Russia and China. Currently, Russia sees US actions as damaging to the US-Russian bilateral disarmament process and the non-proliferation regime. Likewise, China is threatening to respond to NMD with a build-up of its nuclear forces. China follows Moscow's reactions to NMD carefully especially with regards to the developments of START III and the Intermediate-Range Nuclear Forces Treaty (INF). China is concerned that NMD may prompt a Russian withdrawal from INF and an increase in defenses in Moscow and weapons sales to friendly buyers like India — who question US claims of NMD being in their interest.

If taken unilaterally, NMD could weaken US relations with not only its traditional rivals but also with allies such as Canada. NATO allies have launched active consultations and dialogues with the United States. The United States has assured NATO that the views of the allies will be taken into consideration when the US makes decisions regarding NMD.

In addition, New Agenda Coalition (NAC) members are following US-Russian discussions on the ABM and START III treaties.

Some states are concerned that traditional arms control structures will collapse if the United States pushes NMD issues too aggressively. Japan and other countries in Asia see arms control as a cornerstone of stability. If the United States pushes NMD development to the point that the arms control regime collapses, a number of states will have difficulty maintaining close ties with the United States.

Sustaining Stability and Arms Control

Arms control can be viewed from a theoretical perspective to explain the present instability. Key to initiating a war is fear and whether the aggressor believes that they can win. A second strike capability rules out that possibility. Therefore, states need to construct a stable environment where a balance of power exists so that no rivaling parties are disadvantaged nor tempted to launch an attack on another. The key problem in the emerging multi-polar world is that there is a misperception that war can be won — this drives proliferation.

The model of sustaining a second strike capability to promote stability has bearings on a number of conflicts from the past and today. During the Cold War, US-Russian arms control strategies focused on maintaining second strike capabilities to ensure sustained stability. The introduction of NMD by the United States upsets that equation as far as the Russians and Chinese are concerned. The

threat to second strike capability has been a source of tension. In a similar manner, the same set of dynamics is at play in Greek-Turkish tensions. Tensions arose between Turkey and Greece when Turkey felt threatened that both states were no longer mutually vulnerable when Greece expressed interest in purchasing S-300 Anti-Tactical Ballistic Missile (ATBM) systems from Russia. The system would have enabled Greece to launch a surprise attack that could hit Turkish strategic targets but Turkey would be unable to respond. For that reason, Turkey vigorously objected to the deployment. Similarly, Turkish troops in Cyprus also serve as a deterrent and provide a second-strike capability.

The second strike capability model applies the tensions arising between the United States and other nuclear rivals. Deployment of an NMD system threatens to destabilize the existing balance. However, it is important to note that the United States has been trying to cope with how to preserve stability and deterrence in US-Russian relations as NMD is introduced. The environment that existed in 1972, when the ABM Treaty was established, did not entail the threats that exist today where countries of concern are acquiring missile capabilities.

Impact of Globalization

Continued economic cooperation may have a limited positive affect on arms control developments. However, the impact of economic cooperation on relations between China, the United States and Taiwan cannot be overestimated. For example, the current strong economic cooperation between China and Taiwan is not sufficient to keep China at bay. Also, the more China economically grows, the more it will need to liberalize. It is likely that a trade deficit may arise between the US and China, which could cause repercussions. However, power relationships that play out between the United States and China in the political-economic domain rather than the political-military domain may not ease tensions.

Interestingly, there is some correlation with economic development and less reliance on military doctrines. For example, Confidence Building Measures (CBM) can contain economic benefits that are lucrative. However, savings from defense expenditure reductions do not directly transfer into economic investment. Thus, economic cooperation can be helpful in tense relations but it is not a panacea.

Policy Recommendations

Policy recommendations consist of global and regional approaches in order to address global arms control threats. Generally, further CBMs are needed between Russia, China and the United States. Nuclear restraint by all nuclear weapons states would be a significant CBM. The unequivocal undertakings of the nuclear weapons states to disarm are not sufficient. The nuclear powers need to address underlying security concerns and replace their outdated nuclear doctrines. The views of the NAC need to be taken into account, including that the nuclear powers acknowledge disarmament as an obligation and not an ultimate goal.

The international community needs to recognize the magnitude of the global arms control threats. This calls for the NPT to be strengthened, reaffirmed and revitalized; the Conference on Disarmament should be revised and its agenda should be updated; and artificial disarmament deadlines should be eliminated. Further progress, however, will be required in US/Russian reductions before multilateral negotiations can take place.

Iraq needs to fully comply with United Nations (UN) Resolution 687. However, it is important that Iraq does not emerge crippled, devastated and divided. The mishandling of

UNSCOM should not be repeated whereby the regime was used to meet national and international verification goals to the detriment of the collective will of the UN Security Council. States also need to understand how UNSCOM's mandate was insufficient.

When evaluating arms control, analysts and governments need to appreciate that arms control cannot be separated from politics. Arms control and security concerns are inextricably linked. This type of relationship held true in Cold War bilateral negotiations and remains now even more so with regards to multilateral efforts to control WMD. States are driven to acquire such weapons by security concerns or unsatisfied regional ambitions. Weapons of mass destruction are found in regions where conflict is more likely such as in the Middle East.

The spiraling of proliferation in North East Asia, South East Asia, and the Middle East needs to be halted. WMD threats must be addressed in a regional context. For example, South Africa and Latin America have abstained from acquiring WMD by addressing their security concerns with other means. However, no one solution will fit all situations for dealing with regional security problems. For example, in South Asia, international pressure on India and Pakistan is essential in order for the countries to adhere to non-proliferation regimes. In Northeast Asia, regional players need to minimize proliferation by engaging North Korea in dialogue in order to assuage fears of its nuclear reinstallation. In addressing tensions in the Mediterranean, a concomitant demilitarization approach is needed in the Aegean Islands and Cyprus.

In the case of China, opportunities exist to prevent tensions from escalating. China does not focus on US capabilities but rather its intentions. It is not clear to the Chinese if arms control will further US hegemony or enhance global stability. In turn, the US needs to decide what type of nuclear relationship to develop with China. The US should consider cooperative efforts in order to discourage Chinese nuclear armament and proliferation. It is unwise for the United States to view China's nuclear capability as too poor or technically backward to be a significant player in arms control. US support of China's economic development can be helpful in breaking China's stereotype that the US is trying to contain it.

The United States should enhance dialogue with Russia and China on NMD and theater missile defense. The United States must respect the concerns of states that even a limited NMD is perceived as enabling further development of a wider missile defense system. Since states become nervous when mutually vulnerable relationships are put at risk, the United States may need to tolerate such type of relations if the global environment is to remain predictable and stable.

Summary

As the panelists highlighted, many view the current global security situation in a state of flux. There are many dangers present and no simple answers. At the same time, there are windows of opportunities that offer the chance for states to prevent the situation from further destabilizing. As a global leader, the United States needs to consider its role in arms control since its actions will have consequences worldwide.

PANEL 2
Strengthening the NPT Regime: Finding Viable Options

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Introduction

On April 24, 2000, representatives from 187 nations gathered in New York to review the Nuclear Nonproliferation Treaty (NPT). This panel, presented only eleven days after the conclusion of the historic 2000 NPT Review Conference, was timely and insightful in: conveying the importance of the historical context to the recently concluded proceedings, describing the 2000 NPT Review Conference highlights, discussing problems that existed before and after the recent conference, and discussing the two nations outside the NPT framework — India and Pakistan.

In stressing the importance of the NPT, one speaker quoted Prime Minister Tony Blair, Chancellor Gerhard Shroeder, and President Jacques Chiroc who wrote for a New York Times editorial in October 1999: "Nuclear proliferation remains the major threat to world safety and that is unlikely to change in the foreseeable future. The most important weapon in combating this threat is the NPT." Clearly, the world is a smaller place because of emerging and available technology, which guarantees the absence of absolute security for all nations. The speakers would assert that interlocking agreements — the NPT included are the preferred alternative.

Historical Context

In the early 1960s, President Kennedy predicted that in 30 years, there would be at least 25 nuclear states. It was asserted that the 1970 Nuclear Nonproliferation Treaty was a major reason why this prediction did not come to fruition. Nonetheless, during NPT negotiations in the late 1960s, there were many questions about how countries would respond to the emerging treaty tenets. Because of these questions, a 25 year treaty duration was stipulated, at the end of which would occur a one-time opportunity to extend it indefinitely. As is well known, in 1995, signatories voted to extend the Treaty indefinitely. In many ways, 1995 served as the backdrop to the 2000 NPT Review Conference. Specifically, concerns by

the non-nuclear states about reduced leverage over the nuclear possessor states lingered. They were partially offset by declarations in 1995's Statement of Principles and Objectives.

Its key elements include:

- An invitation to membership for those States still outside the NPT. Membership is available only if countries are willing to join as non-nuclear States.

- A reaffirmation of Article VI commitments.

- Completion of the CTBT by 1996. Calling ratification of the CTBT a "litmus test of commitment,' one of the speakers complained that the U.S. Senate had "bounced the check" with its failure to give consent to ratify the treaty.

- Immediate initiation of negotiations on the Fissile Material Cutoff Treaty (FMCT).

- A commitment to reduce global nuclear arsenals.

- A commitment to preserve the ABM Treaty as the cornerstone of strategic security and as a basis for further strategic reductions. Indeed, this commitment was reiterated by the nuclear states in a joint declaration early in this year's proceedings.

- Encouragement of the creation of new nuclear free zones. Implementation of such zones in the South Pacific and Latin America make this commitment particularly successful.

- Advocacy of enhanced nuclear verification mechanisms

- Encouragement for negative security assurances on the parts of the nuclear states, that is, assurance nuclear states will not attack non-nuclear states with nuclear weapons unless the non-nuclear states are in alliance with another nuclear state.

In 1995, many non-nuclear states pushed to have these tenets made legally binding in addition to their politically binding status on states. It was not to occur.

Because of the mixed record emerging since 1995, the consensus declaration approved at the conclusion of the current proceeding, the first since 1985, was remarkable. It also leaves many questions. The irony of obtaining the consensus declaration during this year's Review Conference was that State participants generally had a fairly clear notion what the ramifications would be if the body failed to reach consensus: a weakened process and urgent calls to strengthen the NPT. However, the consequences of success are far less clear.

2000 NPT Review Conference Highlights

An important participant at the Conference reviewed its highlights. First, he cited the ability to produce the consensus declaration. As Chair of the Drafting Committee, he shared that he carried two diametrically opposed recommendations for the Plenary regarding acceptance into the last day of the Conference not knowing which would prevail. Only at the very end of the Conference was he certain that the recommendation to accept the consensus document would prevail.

The emergence of the New Agenda Coalition (NAC) was also hailed. Consisting of Brazil, Egypt, Ireland, Mexico, New Zealand, South Africa, and Sweden, the NAC was effective in bringing the Conference to a positive conclusion.

Responding to concerns about how to proceed toward 2005, the speaker indicated a modified role for Preparatory Commissions

(PREPCOMs) between now and then. Unlike the period 1995-2000 where PREPCOMs (three) produced very little consensus that could be capitalized on in the Review Conference, the plan is to possibly add a fourth PREPCOM and not deal with a draft document for the 2005 Review Conference until the final PREPCOM. That leaves the remaining PREPCOMs to deal with present issues of concern. There is also a desire to establish better coordinated agendas for PREPCOMs.

Review of Problems Existing Before and After the NPT Review Conference

There are three problems pertaining to the NPT that existed before the Conference and remain after its conclusion.

There still exist four non-parties to the NPT — Cuba, Israel, India, and Pakistan. There had been historic hope that all nations of the world would eventually come into the NPT and, largely, they have. The speaker asserted that Cuba may come in soon, but he was pessimistic of the chances to entice the other three to join any time soon. One of the reasons for this is that the only avenue open to a non-party is as a non-nuclear state. Therefore, he believed it was vital to involve the three states in the CTBT and the FMCT. Israel has signed the CTBT, India and Pakistan have not signed. Drawing these states into the FMCT would allow for expectations of further limitations on their nuclear capabilities. The key to drawing them into these agreements is the perception each has of its national security in the current environment. Certainly Israel is concerned about which way the Middle East peace process will turn as well as the actions of certain NPT signatories in the region. Pakistan is most concerned about the balance of power in South Asia. India is certainly concerned with events in South Asia, but also is concerned with China and the whole issue of nuclear disarmament, in general.

A second problem is dealing with NPT parties whose activities remain a cause of concern to the world community. The number of these countries are few, but not diminishing. Two broad approaches have been attempted. First, special measures have been applied to specific countries. United Nations Security Council resolutions for Iraq and the Agreed Framework between the United States and North Korea are examples. More generalized arrangements such as export controls and International Atomic Energy Agency (IAEA) safeguards, also have their place. More could be done in both categories, such as Security Council approval of the recent Hans Blix proposal regarding Iraq and support of the Korea Peninsula Energy Development Organization. In a more general category of initiatives, it is important to keep export control regimes in good order and apply them when necessary. More countries should honor IAEA protocols, with the anticipated benefits being enhanced safety for the participating country and increased pressure to influence those countries that do not participate.

A final problem cited is to maintain the commitment of all good faith parties to the NPT. It remains necessary to insure that the NPT serves the best interests of the vast majority of its adherents. Vigorous pursuit of disarmament by nuclear parties is vital. Currently, continued compliance with the Anti-Ballistic Missile (ABM) Treaty and further reductions under a new START treaty are the most pressing near term measures for Russia and the United States. Other nuclear states also need to contribute. This speaker provided a general advocacy for enhanced verification and transparency. The establishment of the overall monitoring system for CTBT is complete. FMCT, on the other hand, faces a major challenge in getting a means of verifi-

cation initiated. An amended ABM Treaty will bring up questions on the parts of non-nuclear good faith parties. In conclusion, verification regimes of the future will have expanded obligations in undertaking to verify total numbers of warheads, identifying and counting non-strategic warheads, accounting for the contents of nuclear stockpiles, and certifying dismantlement and disposition of weapon components.

India and Pakistan

An analysis suggests that it was unrealistic to believe that India and Pakistan would ascribe to the NPT as non-nuclear states, even though their absence weakened the agreement. Given the probability that they would not join, other options should be considered to produce similar results.

It behooves the rest of the world to investigate beliefs that are deeply embedded in the national culture of the two countries. Among them is the fact that India and Pakistan probably believe that their nuclear programs fall into a different category than those of other nations seeking to purchase nuclear hardware or the technology and or technologists to produce it. By the initiation of the NPT, much of the technology for India and Pakistan's nuclear programs was developed, and developed domestically.

A second consideration is that these countries are increasingly thinking about national security in terms that are larger than the South Asia region, particularly India. (see above Review of Problems Existing Before and After the NPT Review Conference). Questions about Pakistan's interest in exporting weapons of mass destruction to the Middle East were of concern.

The third, and perhaps most important, point is that India and Pakistan both have clear understandings of their international stature and destinies. India looks at itself as a large, populous nation with sophisticated policy and technical communities. It feels it is destined to play a significant international role. The logic is that if India decides the possession of nuclear weapons to be in its national security interests, it has a right to pursue such a capability. The speaker did state a belief that India is willing to accept limitations on its nuclear capability and offered a potential third category of nations to join the nuclear and non-nuclear categories. Pakistan shares India's view of its technical sophistication. However its national security views are a bit simpler, and can be characterized as "whatever is good for India is good for Pakistan."

Are there possible alternatives to the NPT for these two countries? CTBT membership is suggested. In this regard, U.S. ratification is critical. The ascending role of private influences that are counseling that nuclear weapons may seem important, is not the answer to the national security (and destinies) of the countries.

The rest of the world should adopt three simple phrases when considering India and Pakistan's nuclear situation:

- Accept it
- Live with it
- Work through it

With these tenets in mind, the speaker had a final advocacy for the U.S. and other nuclear countries; work with India and Pakistan on questions of command and control and safety.

Alternative Views to the Successes of the 2000 NPT Review Conference

In spite of the apparent success of the 2000 NPT Review Conference in obtaining a

consensus document, many questions still remain. Several were tendered in the summation. First, is the nonproliferation movement — as represented in the NPT — sufficient in keeping the interest of the non-nuclear states? There was concern that what success was enjoyed in 2000 was the result of 12 nations, the P-5 and NAC. The other nations may be becoming marginalized. Second, can anything be done to suffice for the lack of a compliance mechanism? Third, is the current NPT review process adequate, or will it be necessary to establish a more permanent administrative institution to tend to business outside the review conference mechanism? And, if the reply is the latter, how can it be implemented within the constraints of a treaty that cannot be amended? Fourth, is/will the purposes of the NPT be supplanted by the emergence of nuclear free zone agreements? Fifth, are the drivers to procure or produce nuclear weapons for national security going to continue, particularly in light of new generations of technologically sophisticated conventional weapons?

Indeed, the question-and-answer section of this panel surfaced the alternative view that the ability to obtain a consensus document would ultimately lead to disillusionment and disappointment when heightened expectations were not followed by substantive, positive activity. A second member of the audience characterized the current NPT process as the "muddle through" approach (every five years the Review Conference will convene and concentrate on finding common language), which ultimately must butt against the reality of Article VI obligations on the nuclear states. The audience member was not optimistic that the current approach would succeed for much longer.

Summary

In the year 2000, the status of the NPT is uncertain. Buoyed by the 1995 success in receiving a vote for an indefinite extension to the duration of the treaty and the securing of a consensus document in 2000, hopes for significant work toward global nonproliferation are high. On the other hand, very real problems with the process, the potential for lack of gratification for heightened expectations, and the threat of marginalization for most of the signatories are causes for concern. Perhaps we can do no better than to close this narrative with the simple words of one of the speakers, "In arms control, you get what you can get, when you can get it." As for the NPT, only time will tell.

DINNER SPEECH BY
Mr. John C. Gannon,
Chairman, National Intelligence Council

Globalization, or more precisely, a global economy driven by information technology is basically good news for the United States, which enjoys a major technological advantage in projecting its global interests. U.S. national interests are increasingly tied to our dependence on global networks that ensure the unrestricted flow of economic, political, and technical information, as well as people, goods, and capital. In the years ahead, globalization will provide mankind, often led by the United States, with the opportunity to improve the quality of life across our planet.

But, there is a flip side to globalization. It raises the security stakes for the United States beyond the usual concerns about countries such as Russia, China and North Korea with WMD capabilities. Globalization will be accompanied by economic volatility, by the political and security implications of sharpening inequalities of income, and by the growing threat from multiple, relatively small scale programs of Weapons of Mass Destruction that have the capability of striking with surprise. Let me now focus on six points I want to make about this changing threat environment.

First, those countries and non-state actors that cannot integrate into the world economy in the years ahead will experience growing disaffection as both economic development and investment in their people lag behind. Terrorism and Weapons of Mass Destruction Programs, to some degree, will reflect such disaffection, impose threats to American citizens, soldiers, territory, allies, and global interests.

Second, the threat environment to the United States will continue to change rapidly and substantially. By contrast with the massive, but arguably contained Soviet threat, and contained thanks in part to arms control agreements, this new challenge will come from less developed and less disciplined states, well-financed international terrorist groups and powerful individuals with increasingly easy access to conventional explosives and to biological, chemical, and, to a lesser extent, nuclear weapons along with missile delivery systems. This is an array of little guys who can hurt us.

Third, these adversaries, often motivated by ideological rage or ethnic hatred, will have fewer and less powerful weapons than the Soviets but are more likely to use them. And as I have said, they will increasingly be able to count on the element of surprise.

Fourth, our adversaries, big guys and little guys, will increasingly benefit from ready access to four critical enablers in the global economy, and they are all subject to dual use applications. They are:

- fast moving, high volume, information in the general sense.

- technological know how in the operational sense.

- finance in a global sense.

- sophisticated deception and denial practices to cover their tracks.

Fifth, arms control, to be effective, will have to adapt to this dispersed, rapidly-changing threat environment. Arms control models, in fact, have been changing to meet new circumstances for much of the past decade.

This adaptation and innovation will have to continue as far as we can see into the future.

Sixth, fighting proliferation in the future will be, more than ever, a collaborative business. Within the U.S. intelligence community, across the United States government, with federal and local law enforcement, with foreign nations at every level including intelligence cooperation, and with international organizations and NGOs. The intelligence community, like DTRA, will have to reach out to experts and responsible parties inside and outside the U. S. government to ensure that we have the best technical information, research and analysis, and counter proliferation policies in place to prevent WMD use and to minimize the destructive impact if they are employed. There is no place for singletons in the fight against proliferation. I am glad to say that collaboration is the guiding principle of the DCI's Counter Proliferation Center, which is ably led by John Lauder, who is here, and by DTRA, which is so smartly run by Jay Davis.

Bearing in mind the effects of the explosion of technology, economic integration, and cold war residuals, let me elaborate on the threat to the United States and all nations arising from as many as twenty states having nuclear, chemical, and biological weapons programs today. In the past few years, programs in many of these states have reached new milestones. George Tenant has emphasized that no issue better illustrates the challenges, complexities, and uncertainties that we in U. S. Intelligence, and indeed, in all our national security community, face in halting the proliferation of Weapons of Mass Destruction in their delivery systems.

We have witnessed continued missile development in Iran, North Korea, Pakistan, and India. Add to this the broader availability of technologies relevant to biological and chemical warfare, nuclear tests in South Asia, as well as continuing concerns about other nuclear programs and the possibility of short cuts in acquiring fissile material. We are also worried about the security of WMD materials throughout the world. Increased cooperation among so-called rogue states, more effective efforts by proliferants to conceal illicit activities, migration of technical know how from the former Soviet Union to states seeking WMD capabilities, and growing interest by terrorists and potentially other groups in acquiring WMD capabilities.

Our efforts to halt proliferation are complicated by the fact that most WMD programs are based on dual use technologies and materials that have civil as well as military applications. In addition, a growing trend towards indigenous production of WMD related equipment decreases to some extent the effectiveness of sanctions, interdictions, and other tools designed to counter proliferation.

Let's look first at the growing missile threat. We are all familiar with the fact that Russia, China, and the United States all have ICBM's capable of striking at distant targets. To a large degree, we expect our mutual deterrent and diplomacy to help protect us as they have for much of the last century. Over the next fifteen years, however, all of our cities will face ballistic missile threats from a wider variety of actors: North Korea, probably Iran, and possibly Iraq. In some cases this is because of indigenous technological development and in other cases because of direct foreign assistance. And while the missile arsenals of these countries will be fewer in number, constrained to smaller payloads and less reliable than those of the Russians and Chinese, they will still pose a lethal, and a less predictable, threat.

These countries, in our view, calculate that possession of ICBMs would enable them to complicate and increase the cost of U.S. plan-

ning and intervention, enhance deterrents, build prestige, and improve their abilities to engage in coercive diplomacy. As alarming as the long-range missile threat is, it should not overshadow the immediacy and seriousness of the threat that U.S. Forces, interests, and allies already face overseas from short and medium range missiles. The proliferation of medium range ballistic missiles driven primarily by North Korea is significantly altering strategic balances in the Middle East and Asia. Against the backdrop of this increasing missile threat, the proliferation of biological and chemical weapons takes on more alarming dimensions.

Biological and chemical weapons arguably pose the most daunting challenge for intelligence collectors and analysts. I should note that the preparation and effective use of biological weapons by both potentially hostile states and by non-state actors including terrorists, is harder than some popular literature seems to suggest. You all remember Tom Cope, Richard Preston's fictional loner in "Cobra Event", who combined nuclear polyhydrosis virus, rhinovirus, and smallpox in his creepy Manhattan apartment and then used the agent to kill innocent New Yorkers. This was scary stuff. I'm glad it's harder than Tom made it look. But that said, potential adversaries are pursuing BW programs and the threat that the United States and our allies face is growing in breadth and sophistication.

We in Intelligence are trying to get ahead of these challenges by recruiting and training a new generation of intelligence analysts and collectors who understand WMD and by developing a sound strategy designed to encourage sophisticated approaches to penetrating and understanding the threat. We recognize that much of the relevant wisdom in the biological and chemical weapons field is outside the traditional national security community, and we are forging new partnerships with experts in the academic and private sector for research and development, and to inform our analysis on a continuing basis.

This is an imperative, not an option, for the intelligence community today. But, as many of our efforts will not begin to affect our intelligence capabilities for months or even years, there are, and there will remain, significant gaps in our knowledge. About a dozen states, including several hostile to Western democracies — Iran, Iraq, Libya, North Korea, and Syria — now either possess or are actively pursuing offensive biological and chemical capabilities for use against their perceived enemies, whether internal or external. Some countries are pursing an asymmetric warfare capability and see biological and chemical weapons as a viable means to counter overwhelming U. S. conventional military superiority.

Other states are pursuing such programs for counter-insurgency use and tactical applications in regional conflicts, increasing their probability that such conflicts will be deadly and destabilizing. A number of terrorists and other groups are seeking to develop or acquire biological and chemical weapons capabilities. As you well know, there are fewer constraints on non-state actors than on state actors. Some groups, like Usama Bin Laden's, have international networks adding to uncertainty and the danger of a surprise attack. Adding to the unpredictability of the lone militants are the *ad hoc* groups here at home and abroad who may try to conduct a biological and/or chemical weapons attack.

Also, biological weapons attacks need not be directed only at humans. Plant and animal pathogens may be used against agricultural targets, creating both potential economic devastation and the possibility that a criminal group might seek to exploit such an attack for economic advantage. One disturbing trend that numbers alone do not reveal, is that BW and CW agents are becoming more danger-

ous, and monitoring these programs is becoming more complex. First, as deadly as they now are, BW agents could become even more sophisticated. Rapid advances in biotechnology present the prospect of a new array of toxins or live agents that require new detection methods, preventive measures, and treatments.

On the chemical side, the risk is growing and information about new types of chemical agents developed in the former Soviet Union, the so-called "fourth generation agents," may spread to other countries or sub-national groups. BW and CW programs are becoming more self-sufficient, challenging our detection and deterrent efforts, and limiting our interdiction opportunities. Iran, for example, driven in part by stringent international export controls, is acquiring the ability to domestically produce raw materials and equipment to support indigenous biological agent production. Self-sufficiency clearly is a threat to the world community's ability to limit proliferation through arms and technology control regimes. Also, countries are taking advantage of denial and deception techniques, concealing and protecting BW and CW programs. Concealment is a particular risk with BW because of its overlap with legitimate research and commercial biotechnology. The technology used to prolong our lives and improve our standard of living can quite easily be used to cause mass casualties. Even supposedly legitimate facilities can readily conduct clandestine BW research and can be converted rapidly to agent production. Additionally, advances are occurring in dissemination techniques, delivery options and strategies for BW and CW use. We are concerned that countries are acquiring advanced technologies to design, test, and produce highly effective munitions and sophisticated delivery systems.

Turning now to nuclear proliferation, the growing threat is underscored today by developments in South Asia, where both India and Pakistan are developing more advanced nuclear weapons and moving towards deployment of significant nuclear arsenals. We remain concerned about the prospects for renewed testing by both countries and the resulting escalation of the nuclear arms race on the sub-continent. Iran, also, is pushing its program forward, augmenting its nuclear technology infrastructure. Stemming the flow of nuclear related technologies into Iran remains one of our highest goals.

Meanwhile, Iraq probably has the personnel, documentation, and some equipment needed to continue nuclear related work. If Iraq is able to improve its access to foreign markets, it could begin a major reconstitution effort, in our judgment. With regard to North Korea, the agreed framework has frozen Pyongyang's ability to produce additional plutonium. But we are deeply concerned that North Korea continues covert nuclear weapons development at other sites. We are also concerned about the potential for states and terrorists to acquire plutonium, highly enriched uranium, other fissile materials, and even complete nuclear weapons. Acquisition of any of the critical components of a nuclear weapon's development program, weapons technology, engineering know-how, and weapons-usable material, would seriously shorten the time needed to produce a viable weapon. Iran and Iraq could quickly advance to nuclear aspirations through covert acquisition of fissile material or relevant technology.

Some non-state actors, such as separatists and terrorist groups, have expressed an interest in acquiring nuclear or radiological weapons. Fortunately, despite press reports claiming numerous instances of nuclear material trafficking, we have no evidence that any fissile materials have actually been acquired by a terrorist organization. We also have no indication to date of state sponsored attempts to arm any of these organizations with the

capability to use any type of nuclear materials in a terrorist attack. That said, there is a high risk that some such transfers could escape detection and we must remain vigilant.

Similarly, we have no evidence that large organized crime groups with established structures and international connections are, as yet, involved in the smuggling of nuclear materials. But the potential, clearly, is there.

So, what is the role of arms control in reducing the WMD threat in this kind of environment? Let me say that there is more than one model of arms control and there has to be in the kind of world that we are confronting. Arms control has changed dramatically in the past fifteen years and will continue to evolve in response to the changing WMD threat environment that I have described.

Before the Moscow coup in August of 1991 and the break up of the former Soviet Union, the model for traditional arms control treaties, START, INF, and CFE, included extensive and highly intrusive verification provisions. This was a proud era for the U. S. Arms Control community. The verification regimes included detailed exchanges of information concerning the types, quantities, and locations of nuclear and conventional weapons, rigorous on-site inspections and the use of satellite imagery. We could count precisely the weapons of the other side and monitor compliance. These arms control agreements worked very well, as we all know, and resulted in substantial reductions in both nuclear forces, as well as in conventional weapons. START II, the second generation Strategic Arms Control Agreement, has been ratified by the United States and Russia and will, if it comes into force, further reduce each side's nuclear weapons. The consultations have been held on START III. CFE has worked, as well, as there is now an adapted CFE treaty to take into account the new realities involving an expanded NATO in the states of the former Soviet Union.

Following the 1991 coup, other more flexible models of arms control emerged rather rapidly. The FSU leaders, or some of them, feared the loss of central control over tactical nuclear weapons, and we all feared the possibility that these weapons would find their way to other countries. The Bush Administration made substantial progress through informal and non-traditional arrangements that had little in common with the START, INF, and CFE models. The mechanism for change was unilateral initiatives by each country that were expected to be matched by the other side. Decisions were made to forego the intrusive verification provisions contained in earlier arms control agreements, and to rely instead on transparency. Through close communication between senior officials in both governments, the threat of tactical nuclear weapons was reduced. Both sides stood down from alert their strategic bombers and ICBM schedule for elimination under START, and other measures were adopted to stabilize the situation.

The Clinton Administration has continued to build on such initiatives. As you know, Congress passed a number of programs known as the Cooperative Threat Reduction Program. In a nutshell, these measures were designed to provide funds to assist Russia and the former Soviet states in reducing their arsenals of nuclear, chemical, and biological weapons and to prevent WMD proliferation to other states. These programs, which are ongoing, have reduced the proliferation threat. Congress is planning on a billion-dollar proliferation budget for the next fiscal year. What all of these initiatives have in common is a reliance on transparency, including visits, exhibitions, and data exchanges, in place of formerly negotiated reciprocal monitoring

measures. These programs, clearly designed for the times, helped to reduce the proliferation threat, although they may not provide the same monitoring confidence as traditional treaties.

A third model for arms control is the multilateral arms control treaty, best represented by the Chemical Weapons Convention and the Comprehensive Nuclear Test Ban Treaty. Both treaties have more than a hundred states parties who differ from each other in a number of important respects, including their nuclear weapons capabilities and the sophistication of their chemical industries. Secondly, as pointed out earlier, the dual use nature of equipment to produce chemical weapons makes monitoring difficult. In the international monitoring regime established under the CTBT, it is designed to detect only non-evasive testing, making it difficult to detect potential, evasive testing. Third, because the enforcement mechanisms of both treaties are in the hands of international organizations, they have both positive benefits as well as certain disadvantages.

The challenges of multilateral treaties raise questions about the extent to which they help reduce the threat to world peace caused by Weapons of Mass Destruction. On the positive side, the multi lateral treaties have established international norms of behavior in the area of nuclear weapons development and the development and retention of chemical weapons and facilities. While so-called rogue states may not be inclined to obey the rules, these norms can provide a basis for international action against the violator. Potential violators now must weigh what they see as the security and political benefits of WMD against the potential costs of evasive measures or of international sanctions following a violation. The disadvantage in the multilateral approach, of course, is the inherent difficulties in enforcing such treaties.

We are now in the midst, in our country, of a healthy debate about the future of arms control, driven, in part, by the change in threat environment we face. Some, as you know, have suggested we need to consider even deeper reductions in the nuclear missile forces of major powers. Enhance cooperation in national defense and early warning systems and new cooperative initiatives to halt the proliferation of Weapons of Mass Destruction. Whatever the initiatives our country adopts, it is clear that our arms control experts are adapting their tradecraft to changed circumstances, and will have to continue to do so in the years ahead.

PANEL 3
Exploiting the Information Revolution: Better, Faster, Cheaper Verification

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Introduction

The history of arms control in many ways is linked with the industrial and scientific revolution and its acceleration in the beginning of the last century. Technology is the core subject matter of arms control history, and plays an important role as a tool of arms control. Many discussions have been made of historic importance in the development of concepts such as national technical means of verification. In the current age of globalization the growth of technology is asymptotic and is spreading widely around the world. This creates two opportunities for examination: what are the implications of this incredibly rapid advance and spread of technology as a subject of arms control, and arms control in a non-conventional world.

National Technical Means of verification and sensitive sources and methods have permitted arms control advances in recent years; however, many of these tools are now commercially available and widely used. This causes a dichotomy between public and private policy and implementation. Moreover, the role of NGOs has been expanding and growing in the formulation and implementation of policy, while arms control traditionally has been confined to a narrow government national security community. The theme for this panel session was opportunities for technology in arms control and the risks and challenges.

Concepts of Technology in Arms Control

There are two ways to look at the intersection of technology and arms control: define the acceptable limits on the use of technologies, and determine the exploitable technologies for verification and national technical means. Generally, we have not been successful restricting technology and there are more opportunities for exploitation.

Historically, limitations on technologies used in treaty verification have been problematic. In the Anti-Ballistic Missile (ABM) treaty

there are direct limitations on what a state can and cannot do with strategic systems and there are indirect limitations on what a state can and cannot do with non-ABM/National Missile Defense (NMD) related systems (e.g., tactical or theater missiles). The Department of Defense (DoD) was confronted with the issue of how to determine the difference between an ABM acceptable test of strategic systems but avoid testing an anti-tactical missile system in the realm that would give some strategic capability. The DoD developed an informal guideline as a measure for strategic systems of greater than or equal to 2 km/sec reentry velocity. DoD undertook testing based on this guideline and recognized that over time the distinction between Russian tactical and strategic systems became unclear, until eventually the overlap became extensive. As eliminations out of Russian missile inventories, required by the Intermediate-Range Nuclear Forces (INF) treaty, mounted it was discovered that the velocity of the remaining reentry vehicles was in a range above the guideline. Since this was a bilateral treaty, the US should have been able to do tactical system testing above the accepted threshold without impinging on treaty restrictions against strategic defense systems. The US could have kept the treaty as a moving living body, based on influencing forces at the time, and established a program against the existing systems. In this manner, regardless of the type of testing performed, the program could have continued without the requirement of an agreement between nations, and not impinge on the ABM treaty. However, the U.S. chose to negotiate an agreement to clarify these distinction. The ABM treaty does not allow the US to defend other countries against these long-range systems; yet the US has now offered to share NMD technologies, which would appear to be in violation of the treaty.

There is no comparison between technologies today, where an extensive amount of information is available, and the technologies that were available when the treaties/agreements were written. The verification measures currently being implemented were defined in an environment where none of the technologies today existed.

Bringing modern technology into arms control can present a dangerous dilemma for the technology community. Negotiators are generally from the diplomatic policy community and are conservative and not cognizant of emerging technologies. Once a treaty is negotiated, the modification process makes it prohibitively difficult to introduce useful technologies. This may encourage the technology community in the government to get too far out in front of the policy community. To overcome this, consideration should be given to using commercially available technology, things used in everyday life, for arms control and collaborative international technology development.

The Information Revolution

The information revolution is characterized by the following: technology is increasingly used to improve efficiency and accuracy of complex and routine transactions, automation reduces the demand for human presence, human capabilities are extended and enhanced by use of technology, information is available real time on a global basis to preselected users, and technology is used to reduce or process complex data sets and present them to decision makers in an easily understood manner. These characteristics provide faster, better, cheaper capabilities that are highly desirable for treaty verification.

For the past 10 years, evidence of the information revolution has been be observed in everyday life, yet there is little technology employed in treaty verification. The Conventional Armed Forces in Europe Treaty

(CFE) is heavily based on human inspectors conducting inspections; there are fairly detailed data declarations but they are exchanged by paper. INF and the Strategic Arms Reduction Treaty (START) are also low in technology use with the use of off-the-shelf radiation detection equipment, and off-the-shelf portal monitoring systems. The Comprehensive Test Ban Treaty (CTBT) however, is the first treaty to exhibit a flavor of the information revolution. The basis of this treaty is technology; there will be approximately 320 seismic, hydroacoustic, infrasound, and radionuclide detector stations around the world that automatically collect and submit data to the International Data Center in Vienna. The combination of automation and human analytical capabilities screen large quantities of data and transmit bulletins to all states parties indicating the origins of detected events. All states parties also have access to the raw data collected.

The internet has changed the way we communicate on a worldwide basis. The flow of information is tremendous at low cost. However there are ever-present dangers of vulnerabilities. Measures can be taken to circumvent some vulnerability at an increased cost.

The current philosophy of the arms control community is to design a new system rather than determine what is commercially available to satisfy the requirement. There are existing commercial and private sector technologies that provide capabilities that are directly relevant to treaty verification. There is a commercial capability for automated tracking of international/national shipping via satellite link providing position, communication, sensor data transmission (temperature, engine rotation, and speed of vehicle), encryption and authentication (cargo, sensitive, government and proprietary) and the internet functions as a platform for real-time display and query. These technologies are directly relevant to many future and existing treaty verification applications for tracking and accounting of military equipment, weapons, sensitive materials and monitoring end-use of selected exports.

Private key and data encryption technology is used to confirm identification of user, authorized use, data authentication and accounting, and remote activation in real time. These technologies could be used in treaty verification for restricting access to sensitive facilities and monitoring use of equipment at facilities.

In the past, terminals had to connect to a large mainframe to perform simulations with multiple participants: a setup that was expensive and cumbersome. Today using distributed simulations, with only modest computing power and relatively minor communications requirements, simulations can be established with participation anywhere in the world. Inspectors for CTBT are not full time personnel, they live all over the world. Distributed simulation technology could be used to perform routine training and virtual mock inspections. Training and inspections, with various users assuming specific roles, could be conducted with all participants at home, significantly reducing cost by eliminating the need for periodic international travel.

Robotics and remotely accessible laboratories are currently used for hazardous operations, advance manufacturing, image recognition (detection and destruction), planetary exploration (Mars Rover was designed to perform soil samples, chemical analysis and topographical mapping), and medical applications in microsurgery and remote surgery. Treaty verification applicability of these capabilities include assistance to on-site inspectors and surrogate inspectors for inspection of sensitive facilities, thereby eliminating the risk of

losing sensitive information that may be compromised by human inspections.

A tremendous commercial satellite photography capability is available that is inexpensive and easily accessible from the internet. Today, anyone with internet access can task a satellite to generate an image anywhere on the globe, and within a few days download image data; this process may use any of various technologies including visual spectrum panchromatic, multispectral sensing and radar. Satellite technology could be used as the backbone of a confidence building regime for a small geographical area with opposing armies. Weapon systems today create an unstable environment with their fast delivery times yielding little reaction time. Routine imaging of contentious areas with satellite photos and providing this information to opposing armies can allay military concerns and avert a crisis. Such a system would require data authentication and extensive communication capabilities due to the volume of data and capabilities that exist today.

In the long term we can envision the construct of a worldwide system to track infectious diseases. This is performed in modest ways by snail mail today. Every hospital in the world could be connected together and report on epidemiology occurring in a region. This would be beneficial for world health in everyday living and as a byproduct serve as basis to support the BWC. A proof of concept has already been performed with the CTBT, which already has stations around the world.

Exportability is a constant problem for developing technology for arms control applications. The US imposes careful control on what is exported to the international community. Increasing the use of commercial off-the shelf (COTS) technology will ease export concerns.

International Cooperative Technology Development

We need to increase the reliance on international collaborations to test and evaluate technologies in advance of treaty negotiation implementation. Technologies introduced during negotiation arouse suspicion of the other negotiators. We should develop the technology in a manner that all parties are comfortable with before it advances to the negotiation table. The CTBT group of scientific experts and the international body, during years of negotiation inactivity, have worked out the scientific and technology issues of verification. In this manner, the international technical community has a significant consensus prior to negotiation of how to verify the treaty. At treaty entry into force, implementation will be straightforward with all technical issues in agreement. The U.S./ Russian lab to lab program presents an excellent opportunity to evaluate technological approaches. Future treaties should build in the agility to accommodate new technological innovations as they become available.

Differences in the use of Technology between the Private Sector and Treaty Verification

There are fundamental differences in incentive, culture and customer base between the private sector and treaty verification worlds. The private sector is driven by economic profit, functions in a competitive environment and has a large customer base that is constantly changing, requiring agility and flexibility to meet these ever-changing needs. The treaty verification world is driven by a political process in which different parties have unique agendas — countries are competing but decisions on systems to employ requires a consensus — and there is a small specialized, mostly government customer base. Both worlds deal with a significant amount of se-

crecy and neither are known for their openness. The private sector requires secrecy over sensitive proprietary information to preserve economic profit and the verification world requires secrecy over military information. The private sector takes a practical approach to technology, in viewing it as a tool for profit. Technologists are in a position to make decisions that are appropriate for them and have the ability to rapidly implement new technical innovations. The verification world is very distrustful over practical tools, concerned that the technology will reveal more information than the minimum required by treaty. Treaty negotiators lack the technical skills to make cognitive decisions on new or emerging technologies.

Challenges in treaty verification are such that they will stimulate the way in which we look at technology. The number of multilateral treaties is expanding. In the initiation of CWC, consideration is being given to make the NPT more efficient in verification; and the FMCT will provide real challenges for inspectors. The increase in the reduction of nuclear weapons between US and Russia requires much more extensive monitoring capabilities for weapons dismantlement, excess materials, and stored weapons that will result from this process.

It would be beneficial for the arms control community to create an influx of private sector competition for verification technology. Demands will increase as arms control treaties and agreements increase. The advantages for developing non-proliferation or verification industrial complexity should introduce enhanced competition for private sector organizations.

Treaty Verification Technologies

Technologies can be used on a national or international basis to provide further assurances in treaty compliance. However, technologists continually encounter barriers to implementing the needed technologies. The number of non-alert nuclear weapons is increasing as treaties reduce the number of weapons on alert. These warheads need to be dismantled as quickly and efficiently as possible. Russia has tens of thousands of allegedly poorly guarded fully assembled warheads available for theft from within or outside of the country. Dismantlement facilities are small, with the capability to dismantle at most two or three thousand missiles a year. They are expensive to build and are intended only for this temporary use. There is no fiscal incentive to build bigger or faster facilities. DTRA has initiated the Cooperative Threat Reduction (CTR) program, sparked by Nunn-Lugar legislation in which agreements are in place for the US to assist Russia to ensure non-alerted missiles are well guarded and secure. The US has constructed a mock Russian storage facility with equipment for training Russian soldiers. The equipment (fences, drug testing, and polygraphs) is provided to the Russians for delivery to their remote facilities but none of it is highly technical.

An example of the kind of high technology that would benefit both nations, and indeed the world, is the gamma spectrometer, developed at Sandia National Laboratory. This device has been developed to look at a sealed container and in minutes, by producing a scalar measure of whether or not there is a certain quantity of plutonium in the container, indicate that the same weapon/plutonium is in the container, if the container was moved, and if it is the same container. This information could be distributed on the internet, remotely, etc. The spectrometer is believed to be tamper proof and it is portable. The gamma ray spectrum, which contains classified information, is not saved by the gamma spectrometer, so classified information does not pass the information barrier. It has been

demonstrated in the US/Russian lab to lab agreement, but the Russians will not give the US access to their bases. The US Congress will not support the program without a guarantee that the equipment will be used for the purpose intended.

Summary

This panel discussion highlighted the opportunities and challenges in arms control technology. Globalization is a process or a substantive change in the world, it is a reality and it is constantly evolving. It involves the measure/countermeasure syndrome. Technologists say this system of systems will mean US dominance in all technologies. On the other hand there are powerful leveling effects of some aspects of globalization to the degree COTS technology is utilized.

Arms control monitoring in the 21st century involves cold war/post cold war issues. During the cold war the model of verification involved close monitoring, cooperative measures and confidence building. The imperial reality in the post cold war is that as states political conditions improve, the interest in many of the strict, technical and procedural approaches diminishes.

Today arms control involves many countries in regions of the world. However, almost every treaty now being implemented was negotiated during the cold war. Habits on how to use technology and how to build in a technical verification regime into a treaty were formulated in the cold war and need to be reviewed and updated based on today's technological environment.

Consideration should be given to allow treaty negotiators to set requirements and establish a competitive process to allow technologists, drawn from across national laboratories, defense contractors and the private sector, to compete for the design of verification systems to meet requirements.

Arms control is an evolving field; implementing verification approaches for existing treaties should be evaluated to determine where there are opportunities to do a better, cheaper, efficient and effective job. DTRA would do a tremendous service to the community by undertaking and overseeing a review of this kind for the full range of verification measures.

PANEL 4

Non-Governmental Organizations Initiatives and the Focus on Human Security

Chair
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Prof. Bernard Brown
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University of New York (Graduate School)

Dr. Jürgen Scheffran
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FRG

Rev. Vernon Nichols
President,
NGO Committee on Disarmament

Prof. William Walker
Professor of International Relations,
University of St. Andrews

Introduction

Panel participants discussed the role of NGOs in arms control. Traditional arms control, aimed at redressing military balances or tensions between states, has been supplemented by a parallel process aimed directly at alleviating human suffering. The international community of nations, governmental organizations, and NGOs are concerned about the worldwide flow of small arms and light weapons (SA/LW) as well as the control and ban of landmines and weapons of mass destruction. A number of NGOs have formed coalitions, such as the International Action Network on Small Arms (IANSA), to further their causes. IANSA's goals, memberships, and tactics bear a strong resemblance to the International Campaign to Ban Landmines (ICBL), the NGO coalition organization largely responsible for the December 1997 Ottawa Landmine Treaty.

Questions addressed by this panel include: How are national security interests affected by NGO advocacy of arms reductions on humanitarian or moral grounds? How well have these NGOs accomplished their goals? Should they be viewed as a temporary phenomenon or the wave of the internetted future? Can good intentions get in the way of good policy?

The Increasing Roles of NGOs

One of the striking features of NGO participation is that NGOs not only campaign, advocate, and try to influence delegations, but in some cases they are made members of delegations. This enables them to participate within the decision making process, which greatly increases their clout.

In Ottawa there was a coalition entitled the International Campaign to Ban Landmines, which coordinated the efforts of a thousand NGOs. In addition, there were numerous independent NGOs.

There were a number of delegations that included representatives of the NGOs who were then able to coordinate with the NGO community on the outside. These NGOs coordinated in order to apply

pressure on government delegations in which they participated.

Another dramatic indication of the rise of the NGOs is their participation at world conferences that have been held in about half a dozen locations in the 1990s called for by the United Nations General Assembly. Legitimized by the United Nations, these world conferences have been called for specific topics.

The first important world conference, where NGOs made the breakthrough was the conference at Rio on "Economic Development". There were delegations from the usual 150-180 governments, but there were also approximately one thousand representatives accredited to the conference. In addition, there were 18,000 NGO representatives in attendance at the Rio meeting who were accepted and accredited to the conference by the U.N. It was so important that they held a separate NGO quorum parallel to the official meeting on economic development because the U.N. basically accepted the principal of what is called sustainable development and this has led to the involvement of thousands of NGOs in the politics of globalization at the U.N. level.

The next year there was a world conference on human rights in Vienna. Again, there were close to 3000 NGOs officially accredited to the meeting. These NGOs played a very important role in working out U.S. policy on human rights.

There was another meeting at Beijing on women's' rights, and again, there were approximately 3000 NGOs officially accredited to the conference. There is, therefore, a situation now where the official participation of NGOs is accepted at the international level.

A few years ago the Council on Foreign Relations formed a study group on the role of NGOs and an article entitled *Power Shift* by Joyce Tuckerman Matthews was published in "Foreign Affairs" in 1997. The thesis is that power is shifting for profound historical reasons from the national state to other groups within society. Why is this happening? The state is not able to control the movement of capital, labor, immigration and information as effectively now as in the pastædynamic change within the global society and change that's escaping the control of the old sovereign national state. The NGOs are one aspect of this power shift. Where is power shifting? It can only go to one of two other elements within society: the market and what is generally now called civil society.

The market has turned out to be much more flexible and successful in dealing with a range of problems than the coercive state. The state, which acts through bureaucracy, has been yielding some of its decision making power to the market and the market does a range of things better than the state. Take, for example, the dispersing of services at the U.N., which the U.N. does not do very well. Since it is highly bureaucratized, it is very difficult for the U.N. to adapt quickly to local situations. While the U.N. disperses huge amounts of economic assistance, most of that work is now done through NGOs.

There is also a shift towards organized groups formed within civil society. Joyce Matthews estimates these groups to number in the millions with the inclusion of village councils, and similar groups, in countries like India. There has been an explosion in the number of NGOs.

NGOs are not going to replace the market or civil society. In many ways the states have become even more important because markets need regulation. Because civil society's responsibility is just too diverse, there must be some agency in the society that will define and

defend the public good. In response, there is a proliferation of NGOs. Within nations there are interest groups and advocacy groups. Overall, however, even though they try to influence the state, the state must be the place where the decisions are made.

It is proposed that there be created a policy triangle formed by NGOs on one side of the triangle, the states on the second side and the U.N. on the third. The U.N. therein places a seal of legitimacy on certain decisions.

The Canadian Foreign Minister, Lloyd Axworthy, developed a theory concerning the role of NGOs. The basic element of the theory is, with the end of the cold war, there is no longer a danger of a massive military attack from the Soviet Union. The important danger now is not to national security, but to human security, and the way to defend human security is to create coalitions between small and medium sized nations and NGOs focusing on the problems of individuals, not the problems of states. Drugs, crime, terror and other problems affect individuals; landmines are one of those problems. NGOs are critical in bringing about desirable results and the U.N. plays an important role in legitimizing this kind of activity.

There is also a downside to each one of these points on the triangle. There is a downside to NGOs in that they include groups on the extreme right and left of the spectrum. The NGO side of the triangle is unable to coordinate itself to the point of making decisions and some force is needed that will coordinate the activities of multiple NGOs.

There is a downside to the small and medium nations. Civil society is also uncivil society. These nations don't have a monopoly on virtue and morality. These are states after all, and states have interests just like every other state, including the great powers. That was evident in the Ottawa process as well.

The U.N. has its distinct problems, such as, how some states do an "end run" around the Security Council by using a numerical majority within the General Assembly to legitimize decisions opposed by the great powers. There is a down side to that. There is a reason why the Security Council was created in 1945. The great powers do have special responsibilities and if states ignore their responsibilities they are asking for a lot of trouble in the long run.

Arms Control and Disarmament

While laws of a country may refer to national security as a particular responsibility of government, that will not be properly attended to if it is understood in any narrow sense or is separate from the broad concept of human security. It also refers, in the NGO community, much more broadly to human needs for food, shelter, medicine and so on. NGOs have a useful perspective to present. Human security can only be secured when the law of force is replaced with the force of law. Expansion of international law has been a single achievement of the U.N. and it is imperative to build upon it.

The NGO Committee on Disarmament at the United Nations publishes *Disarmament Times*, the most recent issue of which has an article by John Holum. The Committee also convenes panels at the U.N. in cooperation with the Department of Disarmament Affairs, particularly during October Disarmament Week, in which the expertise of NGOs, government representatives and U.N. personnel are brought to bear on specific disarmament topics. The Committee also networks broadly throughout the world with peace and disarmament NGOs and then it serves as a liaison between NGOs' concerns for peace and dis-

armament issues and the U.N.'s Department of Disarmament Affairs.

Many heads of government will participate in a Millennium Summit September 6-8 as the 55th U.N. General Assembly opens. A recent NGO forum was organized in response to the invitation of Secretary General Kofi Annan for NGOs to hold such a conference and prepare a report, that will become a U.N. General Assembly document for transmission to the government summit in the fall. In addition to the peace, security, and disarmament themes, it also addressed the eradication of poverty, including: social development and debt cancellation; facing the challenge of globalizationæequity, justice and diversity; human rights; sustainable development in the environment; and finally, strengthening and democratizing the United Nations and international organizations.

The role of NGOs in civil society will likely grow with the Internet as the information reaches farther and farther into all countries. There is a wide range of civil society organizations. We know also that the ability of NGOs to function varies widely throughout the world. Some, particularly the religious, the humanitarian, and the education NGOs, have been functioning for a very long time and have developed great sophistication in their operations. Many NGOs are young organizations still finding their ways. Repressive authoritarian governments severely curb and punish NGOs that step outside the bounds of their regulations.

In his address to the Millennium Forum, Jong Sum You, Chairman of the International Committee of the Citizens Coalition for Economic Justice, appealed to NGOs from all over the world to try harder and strengthen their cooperation and to exchange views on their roles and tasks. He went on to conclude, "I truly believe that we NGOs as a significant global force representing global public interest can make a difference and contribute to the transformation of current inhuman globalization into a people-centered, human- faced globalization."

There is a coordinated effort among NGOs to develop a unified approach aimed at a specific program of reducing friction. It is the only program with this specific aim. Step by step global action would establish a comprehensive world security program, composed of well financed U.N. elements with forces proactive in conflict prevention. This program would include a fully developed network of regional security institutions, each with their own conflict prevention and peace keeping capacity, and a more accessible system of international courts. This strengthening of the capacity of international institutions for conflict prevention and peace keeping, and of the rule of law, would take place parallel with reductions in national armed forces, both nuclear and non-nuclear or conventional and with a binding commitment not to send armed forces beyond national borders except under the auspices of the U.N. or regional security organizations.

For internal conflicts, global action proposes a broad array of conflict prevention measures to be applied by the U.N., Regional Security Organization, and International Corps. For conflicts between neighboring states, it proposes force reductions, defensively oriented changes in force structure, and a set of confidence building measures and constraints on force activities tailored to each situation. It reduces the possibility of conflict between the major powers by fostering their cooperation and preventing smaller wars and through step by step cuts in their conventional and nuclear forces, eliminating their capacity to attack each other.

Global action derives its strength from its packaged approach. Many of its proposed

measures would require treaty commitments from governments and implementation over a decade or more. It urges a treaty-based approach, yet all of the components need not be treaty based nor do all components need to enter into effect simultaneously. It's organized into five successive phases whose full implementation could extend over a 20-30 year period.

Six priority proposals were identified for the next five years: One, establish a core of 50 professional mediators at the disposal of the U.N. Secretary General and the Security Council. Two, establish a conflict prevention committee in the U.N. General Assembly. Three, establish a standing volunteer police force of the U.N. initially consisting of two to five thousand men and women. Four, promote worldwide ratification of the treaty establishing the international criminal court. Five, impose a peacekeeping surcharge on airline tickets or departures in the country where flights originate or on international financial transfers in the country of origin and donate the proceeds to the U.N. to finance conflict prevention and peacekeeping. And six, begin recruitment of an initial 10,000 person, volunteer, standing U.N. peacekeeping force to serve for a 10-year trial period once the funding has begun. There are also several more similar proposals.

Nuclear Disarmament and Missile Non-Proliferation

Some argue that NGOs are in conflict with democracy because the NGOs were not elected. There is some validity behind this argument. On the other hand, society is becoming much more diverse. There are many interests in society, and every person has different interests, but in the U.S. presidential elections only occur every four years. The question is whether the winner of an election represents everyone's interests. NGOs can help ensure everyone's voice is heard.

Where political decisions are made, there are lobbyists pursuing their own interests, which are very often commercial interests. Why shouldn't NGOs voice their interests and suggestions directly to the political decision-makers? These include common social interests and narrow, focused concerns. NGOs do this between elections and this enhances rather than threatens democracy. The process further develops democracy. Even if NGOs don't influence the political decision directly, they have a longer-term impact on politics. Political elections are every four years and governments are only short term, but NGOs can work for longer termsæthey can work for decades. This is the big difference. Their role is to influence the political environment in the long term. They work at shifting priorities within the society, which elects the politicians.

A panelist described his long-term experience working through NGOs on the INF treaty, the debate, and the campaign for nuclear disarmament. He cited some of his experiences with the latter campaign in founding an NGO called the International Network of Engineers and Scientists Against Proliferation. He described the various initiatives of this NGO in research, networking, and political action toward the goal of ensuring nuclear disarmament.

The NGO the panelist cited explored how a nuclear weapon free world could be achieved. The outcome of this was the formation of a network called Evolution 2000, in which 200 NGOs agreed on a formal step-by-step approach to a nuclear weapon free world. Their efforts included protests against nuclear testing by China and France. In July 1996, the Advisory Opinion of the International Court of Justice (ICJ) was also formed wherein NGOs played a crucial advisory role.

This resulted in a chain reaction for the preparation of a draft treaty for a nuclear weapons convention. There were resolutions in 1996 and 1997, already in the U.N., calling for such negotiations on the nuclear weapons convention, but the ICJ opinion helped push the initiative forward. In addition, NGOs had prepared a statement for the NPT Conference and played an influential role in its outcome.

The International Policy Process

There are seven unique features that relate to the role of NGOs in an international policy process. First of all, it was NGOs themselves that were the first to make a call for a landmine ban. This ban did not originate with the government of Canada, Norway, South Africa, or any of the other governments that played a vital role in consummating the treaty. The ban was first called for by the Physicians for Human Rights, which had done a medical mission to Cambodia in 1991 to assess landmine damage to human lives. They found that one out of every 250 Cambodians was an amputee, largely because of landmines, and that vast tracts of arable land could not be used.

Their up-close experience with the victims, as well as the several unique features of antipersonnel landmines (APLs), led them to appeal for a ban. From a medical perspective, the injuries caused by this weapon were so grossly inhumane and excessively cruel.

Second, and more importantly, is the inherently indiscriminate nature of the weapon. Anyone can set it off, be it a soldier or a civilian. The only way to detonate it is to either laboriously go find it with the end of a prod and take it out as a de-miner would do, or to have some child set it off with their foot, which is how most of them are discovered and set off. These features of APLs are possessed by no other weapon and led to this call for a ban.

A third unique feature about the land mine campaign was the formation of an international coalition. The Physicians for Human Rights joined with two other American groups and several European groups and created the Steering Committee of the International Campaign to Ban Landmines (ICBL). Interestingly, however, the first national campaign to ban landmines was actually started by a Jesuit Sister who was running a wheelchair production facility. She hired disabled people, including a double amputee by the name of Tun Chanerhett. The Sister's boss asked her landmine survivor techniciansæthe wheelchair manufacturersæ if they would like to help collect signatures on a petition to their king, as well as to the government of Cambodia at the time, to stop using the weapons. They collected one million signatures. That was in 1994, the year before the formal launching of ICBL.

The ICBL was a coalition effort of over a thousand groups, and it was successful because it had a single, simply stated goal — eliminating landmines and its use from the earth. Another distinctive feature in terms of the political science and diplomatic aspect of this is that for the first time, NGOs actively collaborated as true partners and equals with governments. When the government of Canada in 1995 said, "We want like-minded governments that want to ban this weapon, to come to a conference to ban it," it completely blew up the consensus-oriented U.N. process for arms control agreement. It immediately separated the world into those who want to ban landmines and those who do not, and it put a huge amount of pressure diplomatically and politically upon every government in the world. It was the NGOs' lawyers who actually drafted this ban, with the Foreign Ministry of Canada, the Norwegians,

the Austrians, the Belgians, the South Africans, and others. The terms of the ban emerged from the military and technical expertise and experience of the NGO movement. The absolutely revolutionary coalition between governments and NGOs won the Nobel Peace Prize for the ICBL more than anything else.

The other role that NGOs play in this ban is its record speed of enforcement. On the order of 135-140 governments have signed it and 50 have ratified it since the ban entered into force a year ago. Moreover, NGOs are a crucial part of pushing additional governments to sign, and every month, there is a new government that signs.

Has the International Campaign to Ban Landmines been successful? Yes and no. Resoundingly "yes" in that the international citizens movement and "good guy governments" have succeeded in stigmatizing this weapon for all time. Places that use it are castigated diplomatically and politically; no one wants to be known as a landmine exporter. As a result, exporters are largely dried up. You can't point to a country that is exporting, or producing for export, this weapon in any sizable numbers at all. There have also been extraordinary successes in demining, driven by this "treaty". For example, Cambodia has reduced landmine casualties from 500 to 50 per month. The landmine ban has been remarkably unsuccessful, however, in other ways. The United States has not signed and there are no indications that it is going to join anytime before the year 2006 unless something changes dramatically about the Pentagon's pace in finding alternatives for landmines.

The concern about the U.S. not signing the ban is that Russia will never sign it without the U.S., and the Russians, unlike the U.S., are using this weapon all over the world — Chechnya is covered with them. Nor will the Chinese, the Indians, the Pakistanis or Israelis sign the ban.

Weapons of Mass Destruction (WMD)

The influence of NGOs on weapons of mass destruction is extremely contingent upon the states remaining activists in the field, despite the increasing prominence of NGOs in conferences, media and other endeavors. NGOs still sit very much on the fringes of political processes, even if on occasions they can have very important roles in swaying political outcomes.

A helpful notion is that of an epistemic community, which has been particularly espoused by some students of international relations and is particularly associated with an American academic named Peter Haas. An epistemic community is a network of professionals with recognized expertise and competence in a particular domain. Such networks and communities can embrace a huge array of organizational types. They are of course rife with disputes and arguments and disagreements, but they tend to be united by common normative and principal beliefs and engaged in common policy enterprises. In the nuclear arms control field, it is suggested that there are actually two distinctive epistemic communities plus a third that is usually more latent than actual, but can spring to life in special circumstances.

The first of these communities is concerned with the management of nuclear deterrent relationships. This community is primarily governmental and primarily located in nuclear weapon states and the other states possessing nuclear weapons. It is also primarily national rather than transnational. The influence of the NGOs on this community is rather marginal and limited to very specific issues.

The second epistemic community has been concerned with non-proliferation and disarmament regimes in chemical and biological weapons, as well as nuclear, and is particularly associated with the development of multilateral treaties and policy instruments. This community is governmental and non-governmental, national and transnational, and cuts across nuclear weapons states and non-nuclear weapons states. It is in this community that the NGOs have been particularly prominent.

The relationships between governments and NGOs are sometimes adversarial, but also, these NGOs perform very important services that are actually useful to governments, if not always useful to their respective governments. NGOs often work within international organizations. Their services include facilitating networks, information gathering, dissemination, research and analysis, policy development, etc. Most governments regard them as a generally creative force and in many cases, actually want to cooperate with them rather than to oppose them.

A third community, which is not strictly epistemic, is a loose assortment of grass roots organizations, sometimes located in and around the U.N. They are specifically focused on disarmament issues and on the health and environmental affects of nuclear activity. In periods of crises, this latent community can suddenly mushroom into a very significant protest movement.

The early to mid-1990s for the NGOs was actually the golden age. Multilateral processes were in force, allowing NGOs great opportunity for access and influence over government. For example, the break up of the former Soviet Union was actually something in which NGOs were very active. NGOs also played an important part in the debates about Iraq and how government should respond to problems in Iraq.

The mid-1990s onward have been a time of frustration for most NGOs. The sense of their usefulness is actually diminishing.

Also during the 1990s, the agendas addressed by these two epistemic communities began to overlap and to penetrate. Through the arms reduction process and through the weapons labs becoming involved in arms reduction and verification, the two communities have begun to gather together on some common grounds. The cooperation across these epistemic communities depended upon the misconstrual and evasion of a number of issues. While there was broad agreement that nuclear arsenals have grown too large, there was little agreement on the proper role of nuclear weapons or the nuclear deterrent and arms control in the international systems, and on what the ultimate objectives should be.

In the 1990's, the deterrent community, which is concerned with the central management and deployment of nuclear weapons, paid lip service to the issue of disarmament; it remains substantially a taboo subject.

Within the NGO community, disarmament was still largely out of bounds in governmental discourses in the weapon states. Even the NGOs actually have held back from outright advocacy of nuclear disarmament. They've done many studies on how to create and manage a nuclear weapon free world, but they haven't actually talked about how to create a nuclear weapon free America, Russia, France, China or India. They have limited themselves to advocacy of specific measures such as the test ban treaty or further reductions or de-alerting that are helpful to the project of disarmament without fully addressing the issue of nuclear disarmament.

Moreover, for much of the 1990s, the NGOs had to operate in a climate where there was little popular or public interest in weapons of mass destruction. Interests could be aroused by scary stories, with nuclear smuggling and catastrophic terrorism being favorites in the media, but the public abhorrence that fed the campaign about landmines was simply absent from debates about nuclear weapons. The public in the United States, in Europe and other places had perhaps come to believe that nuclear weapons no longer presented a present danger. Indeed, the popular mood in all countries with nuclear weapons tended to actually support the retention of nuclear weapons, rather than their abandonment, for symbolic and other reasons.

The outcome of the 2000 NPT Conference has strengthened the commitment to disarmament and given a stronger identification of the steps required to get there, but this outcome has taken the NGOs by surprise. This may well embolden the NGOs to pursue the disarmament agenda more aggressively, but the radicalism of the NPT statement was fundamentally driven by states and state bureaucracies.

Concerning nuclear missile defenses, there is unanimity among NGOs apart from those on the political right that an NMD is a bad thing. One sees concerned scientists and others quite active in trying to counter the proposals being put forward by the U.S. government. And if the U.S. government does press ahead with a missile defense program without agreement from other states, then the third community referred to earlier will become engaged, with a significant protest movement developing, and the whole issue of nuclear weapons will be radicalized again, especially in Europe. This would be potentially damaging to trans-Atlantic relations because European governments in the early 1990s-1980s were able to find common cause with the U.S. government. The European governments have very little sympathy for the U.S. position today and in fact find it deeply threatening.

Nuclear disarmament should now be accepted for real in the sense that the outcome of the NPT Conference means that it is for real now and must be addressed. This yields two key questions — how to create a nuclear weapon free world that is peaceful and safe and in which great powers will not again resort to war as instruments of politics, and how to manage a stable transition to this world.

Summary

As this panel has demonstrated, NGOs, much to the chagrin, and delight, of many nations, have become permanent fixtures in international relationsæthey have ideas to share and want to get involved. They will very likely repeat their successes associated with the ICBL, having already evidenced the capability at the Rome Treaty on International Crime. However, states will not be supplanted by outside players principally because states govern, regulate and defend the public good.

NGOs do have an important role in fostering human security as one aspect of national security. They also bring different, diverse perspectives and understanding to bear on international issuesæhuman interests that enhance democratic institutions. NGOs have collaborated as partners and 'equals" *pro tem* with national governments. On the issue of countering WMD proliferation, states remain the main actors and NGOs are on the fringe. The public abhorrence that was exploited in the ICBL debates is generally absent from the debates related to nuclear and other weapons of mass destruction. Lack of enforceability of NGO-forced agreements is an overarching weakness and limitation, which is sidestepped by using the public and the media as forces

for change. NGOs' forcing of their agendas on states parties invariably leads to confrontation with the states that are expectedly reticent to embrace NGO positions that fly in the face of bona fide national security interests.

PLENARY II
Missile Proliferation in the New Millennium: Exploring Options for a Changing Environment

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Introduction

The topic of this plenary session is extraordinarily timely. Missile proliferation has been one of the twin concerns the U.S. has had on the proliferation path for several decades, looking simultaneously at warheads and materials of weapons of mass destruction, whether nuclear, chemical, or biological, and simultaneously at delivery means that give impact to those warheads.

The MCTR has had a record of both successes and failures. At this time, we are at an extremely important junction as we look at the development of the ability to deal with proliferation in new and different ways. It is different because in the United States, in particular, over the last eighteen months we have focused more and more attention not on prevention that has been our traditional path on proliferation issues, but on protection.

The discussion that has taken place on the limited national missile defense option is certainly not just the follow-on of Star Wars. It is something that has been envisioned in far more limited and structured and maybe achievable ways. The technological challenges have been dealt with in more realistic ways than the original Star Wars proposal. It is a serious proposal that has been receiving serious attention and ironically has received support from both sides of the political spectrum, something fairly rare in the U.S. arms control experience.

The questions that must be dealt with, though, are still some of the traditional questions when dealing with both the proliferation problem and the protection problem. One of them, of course, is the technology — what is do-able within this system? The second, is the ability of this system, in combination with controls on proliferation, to provide security to populations. The third is the issue of common defense and decoupling that have to be dealt with in new ways. Finally, there is the issue of what the system really costs, including opportunity costs.

The Case for NMD

The Rumsfield Commission concluded that "concerted efforts by a number of overtly or potentially hostile nations to acquire ballistic missiles with biological or nuclear payloads pose a growing threat to the United States" and that this threat is broader, more mature, and evolving more rapidly than has been reported in estimates and reports by the intelligence community. It further assessed that North Korea and Iran could threaten the United States within five years of a decision to acquire long range ballistic missiles and the U.S. might not have any indicators or warning of such a decision. That is, we may not know how long it is before deployment occurs.

Given the unanimity of views in the Rumsfield Commission on the nature of the threat, and given the reassessment of the intelligence community last fall, there is now substantial agreement on the threat. However there are several exceptions. Although Moscow and Beijing are fond of saying that the United States is exaggerating the threat, their position is very much tied to an active campaign to perpetuate U.S. vulnerability with its nuclear forces. And criticism from allies that have suggested that Washington is hyping the threat comes primarily from Europe rather than Asia.

Conclusions that can be drawn from the threat are as follows. First, the U.S. does require a comprehensive strategy to meet the challenges of WMD and missile proliferation. The United States must lead international efforts such as the MTCR to prevent and slow the proliferation of weapons of mass destruction and missiles. Although these efforts are essential, they are not sufficient. So the U.S. must also pursue defenses to protect its territory against potential threats. This is a national security imperative. Most observers agree with this position, particularly as it applies to theater missiles and theater missile defenses. When it comes to long range missiles, however, agreement breaks down.

The most popular argument against NMD focuses on intentions — the United States does not need to defend against missile attacks because it can rely on deterrence through the threat of massive retaliation. Deterrence of regional adversaries armed with weapons of mass destruction will be difficult but nevertheless will remain the first line of defense. However, deterrence of these contemporary threats is fundamentally different than the east-west deterrence in the past.

The U.S. deterred the former Soviet Union principally through the prospect of mutual assured destruction. Few today would advocate this same concept as a desirable basis for deterrence of regional states armed with weapons of mass destruction. The differences are apparent. The U.S. faces a much more diverse and less predictable set of countries than during the Cold War. The leaders of these countries are much more prone to taking risks than were Soviet leaders, at least those following Khrushchev. Moreover, the conditions that the U.S. valued for deterrence (effective communications, agreed understandings) in the east-west context are not likely to pertain with regional states.

In addition, these nations see WMD as their best means of overcoming U.S. conventional superiority. WMD, and especially biological weapons, are becoming weapons of choice to deter the U.S. from intervening in regions to halt aggression, unlike in the Cold War when the U.S. was attempting to deter the Soviets from expanding. In this context long-range missiles become particularly valuable as weapons of coercion to hold American cities hostage and thereby deterring the U.S. from intervening. The tremendous dispari-

ties in favor of U.S. conventional forces and nuclear stockpiles simply don't mean anything in these calculations. Nations need to hold only a few U.S. cities at risk. This is not irrational; in fact, this is very well thought out.

A second argument often heard against proceeding with national missile defenses is that NMD would threaten strategic stability. What is implicit in this argument is that the U.S. must continue to base its relationship with Russia on the same footing that it had with the former Soviet Union. Advocates of this view are willing to extend mutual assured destruction to China and extend at least partial vulnerability to states like North Korea.

A third argument is that missile defenses are simply not technologically feasible. However, for ABM Treaty reasons the U.S. has ruled out some of the most promising and cost-effective approaches to defense, including sea-based and space-based systems. These are the capabilities that could provide for boost or ascent-phase intercepts that offer the greatest potential for countering the missile threat as it evolves both quantitatively and qualitatively, including through the introduction of countermeasures. Yet U.S. arms control policies which are based on Cold War precepts create roadblocks that prevent us from moving forward to acquire capabilities that can strengthen deterrence against today's threats.

U.S. policy to simultaneously maintain an ABM Treaty and also deploy limited national missile defenses has also had another equally unsubtle influence. For almost eight years, the U.S. has proclaimed the ABM Treaty to be the cornerstone of strategic stability with Russia in a way that has served to perpetuate Cold War suspicions and distrust. This has had two effects. First, along with other policies that Moscow has seen as directed at it, this has contributed to the reversal of U.S.-Russian political relations. Promoting mutual assured destruction as official policy, and at the center of political relations, has a very corrosive influence that necessarily puts the U.S. in an adversarial box. Second, if, in fact, the ABM Treaty and mutual assured destruction do guide U.S. relations with Russia, nuclear weapons become the most important currency, at least for a state like Russia that has the ability to afford few alternatives. This is seen in Russian declaratory policy and in Russian defense planning priorities, where nuclear weapons have become more prominent than at any time in the past.

How Russia will react to the deployment of a national missile defense is an important question. A number of U.S. and Russian officials have predicted dire consequences if the U.S. insists on amending the treaty or withdraws from the treaty altogether. In particular, some have predicted that deploying NMD will threaten the so-called fabric of arms control and lead to an end of further reductions in nuclear weapons. Although it certainly will not like it, Moscow will most likely understand the U.S. position, and most likely will not act against its own interests. Arms control negotiations to reduce nuclear stockpiles are more important to Russia than they are to the U.S. To end the negotiations would end Moscow's best means to stay at perceived parity with U.S. nuclear forces.

The views of U.S. allies on national missile defense and the ABM Treaty are somewhat more complex. NATO allies continue to express concerns about Russian reaction and what is described as the decoupling effects of a missile defense that would protect the United States and not Europe. This counterintuitive argument has been rebutted directly by the administration whose spokesmen have argued the exact opposite. U.S. credibility as an ally would be undermined if the United States were vulnerable to blackmail from weapons of mass destruction and long-range missiles. On the

other hand, if the United States could protect itself from this missile threat, its credibility would be strengthened.

The concerns and objections of allies can be traced to their doubts about the seriousness of the U.S. commitment to missile defenses. Allies wonder whether or not this is just the next American defense initiative that will go unfulfilled but in the process will destroy the framework of relations with Moscow without replacing that framework with another structure. What is clearly required is American leadership, a commodity that has long been absent. And without exercising leadership the U.S. has not been able to make the intellectual case in European capitals for national missile defense.

This failure can be explained in part by the internal contradictions in U.S. policy between the stated goals of preserving the ABM Treaty intact and deploying a national missile defense. Any comprehensive approach to meeting the missile threat must reconcile these inconsistencies. In doing so the U.S. will be able to protect against the threat as well as establish a more stable basis for relations with Russia and others, including the prospect for maximizing cooperation on missile defenses.

Challenges to the Current Arms Control Regime

The current arms control regime is doomed, if not dead. It cannot survive for long in the 21st century, because the present arms control regime inherited from the Cold War reflected the geopolitical and technological realities of that period. Today we face major geopolitical and technological challenges to which the existing arms control regime is not capable of responding. These weaknesses of the current arms control regime must be recognized, because that is the only way to find the solution to the problem.

The current arms control regime was established during the period of Soviet-American rivalry. It managed the military balance to avoid a direct confrontation which would have been suicidal. That resulted in the strategic stability based on three levels. On the higher level of the hierarchy, the Soviet Union and the United States as the two superpowers agreed to form a certain set of rules to regulate their competition. The fundamental component of this regimen was the mutual nuclear deterrence formalized in major arms control agreements like the Strategic Arms Limitation Talks (SALT), START, ABM, and the Conventional Armed Forces in Europe Treaty (CFE). The main principles of these arms control agreements were the principles of parity. The U.S. and Soviets argued about which weapons and how many weapons, but in the end both knew that each country would have equal numbers. On the next level, the three other official nuclear powers were allowed to have nuclear weapons, but only a little bit, so as not to interfere with the superpowers. And then for the rest of the world the NPT and other arms control agreements allowed for zero nuclear weapons.

When looking at the situation today it appears that the arms control regime is being challenged on all levels. First of all Russia is in decline, while the United States is claiming the role of the single superpower and does not see any near-peer competitor in the world. China is rising and demonstrating that its new economic influence might also have military consequences, and India and Pakistan have challenged the regime from the lowest level of the international hierarchy. So it is not the rogue states who are the main challengers to the existing arms control regime; it is actually the main players, including the United States, which in different ways are undermining the existing arms control regime while the rogue states are really a minor problem.

With the disappearance of the Soviet Union as the second superpower the principle of parity lost its rationale. The golden age of arms control with Soviet-American relations was possible in a bipolar system. Whatever the international system is today, it is not bipolar. We do not have any experience in successful multilateral arms control agreements, except those which impose complete prohibitions of weapons. Ten or twenty years from now, what will be the criteria for assigning the number of nuclear or conventional weapons to nations — population, GDP or territory?

The second challenge to the current arms control regime is the revolution in military affairs, especially the application of commercially available information technology to the military sphere. This will produce revolutionary consequences for conventional capabilities to find, track, and destroy any target. It provides precision guided munitions with the range by which they are capable of influencing the strategic balance. The existing arms control regime is simply not ready to deal with this challenge. In the new Russian military doctrine it describes the war of the future as a conventional American attack on Russia and on strategic targets with precision guided munitions. Thus, Russia's preoccupation with nuclear deterrence is because it is not able to respond symmetrically. So precision guided munitions make many definitions of arms control — like strategic and tactical — irrelevant. Take the war in Kosovo. Did it matter how many aircraft or tanks Serbia and NATO had, or was the crucial component precision guided munitions, which are not even mentioned in any arms control agreement? So we limit what is the least important element of the military balance — the platforms — but we don't limit precision guidance. And this, of course, is a major challenge.

Precision guidance challenges the principle of zoning as well. It is no longer necessary to concentrate forces. Firepower can be concentrated while forces are dispersed geographically. It also challenges the notion of transparency because there is a contradiction between transparency and finding targets.

To some extent the revolution in military affairs is an anti-nuclear revolution whose purpose seems to be to make the use of force possible between nuclear powers because only one side can use conventional weapons against the strategic assets of its opponent. In this sense the revolution in military affairs can, together with geopolitical changes, create a situation in which conflict between major powers again becomes possible.

These are the challenges. What about ideas for solutions? Russia and the United States are not forever doomed to live with mutual nuclear deterrence. Mutual nuclear deterrence is incompatible with strategic partnerships; countries do not target strategic partners. The crucial point is to limit counterforce capability, to create a situation through numerical reductions and alert status in which the counterforce bolt-out-of-the-blue attack becomes impossible. This combination might be a beginning of a transition from mutual assured destruction to something else.

Second, the C^4I must be recognized as the most important component of the military capability. So if new arms control regimes are to be meaningful, some means of restriction of battle management systems should be found.

Third, countries should consider an International Disarmament Implementation Agency to finance the implementation of arms control agreements. The creation of an international agency through which countries like Japan, Canada, or Germany, as well as the United States, could contribute might speed

up the process and avoid what might be the collapse of the schedule for implementation of arms control agreements and the regime of non-implemented arms control agreements.

Finally, innovative ideas are needed for managing the multilateral military balance. A rationale is needed to replace parity when dealing with multilateral arms control.

The Israeli Experience

The Israeli view is that proliferation in the new century will be similar to proliferation in the previous century. Missile proliferation is continuing in all the regions of key tensions, including the Middle East. Israel sees three apparent trends in missile proliferation:

- Smaller numbers of core suppliers. Only *some* nations are contributing to proliferation; the situation could be much worse.

- Secondary and tertiary proliferation. (States that already bought missiles now know how to make them and could become suppliers). For example, Iran received its production lines from North Korea which, in turn, gathered knowledge on how to make missiles from ones it received from the Middle East.

- Globalization of the regional threat. The major control measure against missile proliferation has been and still is the MTCR. Some missile programs have been stopped, notably in South Africa and Brazil. During the 1990's MTCR membership grew and it was viewed euphorically. But the large number of missiles tested in 1998 made it obvious that missile proliferation activities have been going on for some time. So now MTCR is perceived by Israel as useful, but not airtight.

Missile proliferation will go on, to the point of missile saturation in key regions. The question is what to do about it. There are two major paths — threat reduction by missile defense and threat reduction by better arms control. Israel made the strategic decision to acquire missile defenses. It was not an easy decision. Four inter-linked issues were addressed in the decision.

The challenge of technology. Missile defense technology has been demonstrated. Little skepticism remains that a bullet can hit a bullet. Israel is also certain its terminal defense can defeat current rudimentary and next generation countermeasures, although this assessment may not extend to mid-course defenses.

The challenge of effectiveness. This is a subjective question not just of P_k, but the effectiveness of defenses depends on the resources invested. A trade-off between performance, cost, and political considerations led Israel to a decision to deploy three batteries defending most, but not all, of Israel against most, but not all, missiles.

The challenge of affordability. This is not a comparison between the cost of defense and offense; rather it is a comparison between the cost of defense and the cost of no defense. There is a cost to no defense. In Israeli terms it was payment in damages. In the 1991 attacks, Israel was hit by about 40 missiles that caused tremendous property damage. So, no defense funding cost Israel in direct property damage hundreds of millions of dollars. The question is not the exchange ratio between an expensive interceptor and a cheap Scud, but between the cost of the interceptor and the damage caused by that Scud. Having no defense funding also limits freedom of action, due to coercion, which Israel found impossible to experience.

The challenge of stability. In the Middle East, countries are buying and making

missiles to the fullest extent of their economic, military, and infrastructure capabilities, independent of Israeli missile defenses. So, the Israeli defense system is not instigating further missile proliferation in the Middle East. In addition, missile defenses are *responsive* options; they are non-aggressive. If countries don't have defenses they are pushed to aggressive responsive options such as preemption and massive retaliation, highly destabilizing measures.

In addition to consideration of the above four issues, Israel recognizes that it is the duty of a government to defend its people. What is government for, otherwise? This moral imperative also weighed in Israel's decision to deploy a missile defense system.

Of course there is the other path of threat reduction. MTCR is not fool-proof. Today there are initiatives for new arms control regimes to further control the proliferation of missiles. These initiatives are user's regimes, rather than supplier's regimes. Initiatives for these regimes fall into three major categories:

- User obligations to use missiles responsibly by limiting range, payload, deployment, etc. This is a good idea provided it's mutually verifiable; unilateral declarations in the Middle East did not hold much weight. Unfortunately, verification in the Middle East will not be evident in the near future.

- A transparency regime that would provide advance announcements of missile tests. Unfortunately, this may legitimize proliferation and undercut the MTCR. Also, transparency does not necessarily increase confidence; it may be counterproductive. Announcing missile tests could actually accelerate missile proliferation, rather than prevent it.

- Economic inducements to stop missile proliferation. The idea is to reward countries economically, such as investing new business in commercial space, if they stop missile programs. This idea is very practical and should be pursued.

The MTCR is essential and will continue to retard but not halt proliferation. However, diplomatic measures and military preparedness should continue hand in hand. These two paths do not contradict each other. Additionally, arms control doesn't contradict missile defense and missile defense doesn't contradict arms control, at least in the Middle East. All elements of new user regimes that can reinforce the MTCR should be adopted. The deployment of regional missile defenses is stabilizing and should be encouraged.

European Perspectives

Why do Europeans appear to be complacent about ballistic missile proliferation, especially since ballistic missiles will threaten Europe before they threaten the United States? There are four reasons why homeland defense is not high on the European agenda.

First, Europeans believe that the American threat perception of the long-range missile threat is on the high end of the spectrum. Second, coercing the West is only one of several potential reasons why countries are developing ballistic missiles — others reasons being prestige and money. Third, there is a stronger belief in nuclear deterrence in Europe than in the United States. Fourth, Europe views the modernization of its conventional forces as having enough power projection capability.

It is not complacency that characterizes the European reaction to ballistic missile proliferation; it's just a different net assessment of the situation.

Why are most Europeans reluctant or skeptical about national missile defenses? It

is important to understand what European skepticism is *not* about. It is *not* about self-delusion; Europeans think the threat exists and is growing. It is *not* really about the risk of a new arms race between Russia and the United States. There may be a risk of arms races, but not the like the Cold War one. It is *not* because Europeans see risks for the French or the British deterrents; no French or British official is seriously worried about that.

Europeans are skeptical about national missile defenses partly because of the decoupling issue, although the decoupling issue is not essential to Europeans' questions. There is strong logic in the Administration's argument that NMD could indeed make the United States a better ally. If Europeans were worried about U.S. vulnerability for 50 years because they thought vulnerability might prevent the United States from coming to intervene on their side, then it would be only logical and self consistent for Europeans to say the argument can work the other way around. So decoupling is not really a big issue.

The European issue consists of several different points. First of all, NMD fuels existing doubts about the depths of the U.S. commitment to multilateral disarmament and nonproliferation efforts. It is not so much NMD as it is CTBT plus NMD. Not ratifying the CTBT, coupled with the NMD program, may reveal a possible shift in U.S. strategic culture. Second, NMD will give the perfect excuse for some states, namely China, to stay away from mainstream arms control and also enhance its own capabilities and maybe become once again the champion of the nonaligned movement. Although China decided to increase and modernize its nuclear forces whether or not the United States does, the choices made by the United States will have an impact on the Chinese policy and will decrease the chances of engaging China into the mainstream community of arms control, disarmament, and nonproliferation.

The third concern with U.S. NMD has to do with threat displacement, a very real risk. Assuming there is a crisis between the United States and a so-called rouge state and the United States is protected by a limited ballistic missile defense system, the leader of the rogue state might be tempted to pressure the United States not by threatening its territory, but by threatening its allies. Of course the easy answer to that is for Europe to have its own missile defense, so we are caught in a Catch-22 situation. But this crisis time decoupling is something that the U.S. and allies must manage and work out together. Fourth, Europeans are also worried because of the spill-over effect that the NMD debate will have on the Theater Missile Defense (TMD) debate in Europe. Europeans want to decide the right moment when it is legitimate for the U.S. to debate TMD. Finally, there is a risk, if political pressure builds, of diverting resources that are also needed for other purposes.

Now why should the U.S. care about what the French and other Europeans argue? The United States should care, very simply, because of the importance of alliance cohesion. Germany, France, the United Kingdom, and other countries are very much concerned about the potential impact of this divisive debate on the alliance.

What can be done about this situation? The decision to deploy NMD or not to deploy NMD will be a sovereign U.S. decision. What Europeans want most importantly is the maintenance of some ABM regime that limits in a multilateral or at least bilateral way the deployment of strategic defenses in the decades to come. It is very important for most Europeans that missile defense in general does not become a free for all. The nonproliferation regime can also be reinforced, including en-

forcing the MTCR. In addition, the behavior of certain states should be more effectively controlled, not all of them considered rouge states, with respect to ballistic missile proliferation and other forms of proliferation.

The burden of proof is on the United States to demonstrate its commitment to global stability while pursuing NMD. The U.S. must demonstrate to the world how difficult it is to go from the kind of NMD system that is being envisaged today to the kind of system that Ronald Reagan was willing to consider 25 years ago. The U.S. must also convince the world that it is interested in deterrence vis-à-vis China. America apparently has not decided yet whether it wants a stable deterrence relationship with China. It's in the world's interest that America make up its mind one way or another. In any case, whatever the decision on deployment, the U.S. will have to manage the consequences on a global scale.

Summary

As this panel has shown, national missile defense is a complex and controversial topic. The case for NMD is motivated by an assessment that the ballistic missile threat from rogue nations is rapidly emerging and rogue leaders may not be deterrable by the threat of massive retaliation or prevented from coercing the United States in regional conflict situations. Russia is concerned about the viability of the current arms control regime, in particular its ability to adapt to the twin challenges of the demise of bipolarity and the revolution in military affairs. Israel's decision process regarding its own missile defense was described, but Israel's decision to deploy defenses in the Middle East is not necessarily applicable to the U.S. NMD decision. Finally, Europeans' concerns with U.S. national missile defenses, most importantly that NMD calls into question the U.S. commitment to multilateral disarmament, were described.

PANEL 5
Biological Weapons Convention: Is a Norm-building Regime as Good as It Gets?

Chair
Ambassador Tibor Toth
Ministry of Foreign Affairs – Hungary

Dr. Seth Carus
Senior Research Professor,
National Defense University

Dr. David Koplow
Professor of Law,
Georgetown University Law Center

Professor Roque Monteleone-Neto
UNMOVIC Commissioner

Dr. Henri Garrigue
Permenant Mission of France, Geneva

Introduction

The panel session began with an overview of the current progress of achieving a BW Protocol. The advent of a rolling text greatly aided the progress of achieving a protocol. A number of lessons have been learned from the CWC, which in some ways aided the development of an agreed protocol. But the CWC experience has also hindered progress on a number of issues, such as lists of agents, intrusiveness of inspections, technology transfer, difficulty in prophylactic transfer of agents and so forth. There has been progress on other more basic issues, such as whether the new organization will be independent of, or attendant to, the current OPCW.

The basic focus of the overview was the possibility of achieving a "Basic Protocol" of non-controversial provisions, while isolating the most contentious issues for future resolution. This, of course, would be unprecedented in arms control treaties since, traditionally, once the official document is reopened for negotiation of any part of the text, the entire document is open. This traditional, legal provision of treaties would require suspension. There are a number of pivotal issues that currently do not have agreement from States Parties, and no prospect exists for such agreement within the current timelines leading up to the next REVCON. These include types of visits and investigations (and the attendant verification rights), triggers and their procedures, lists of agents, etc. Although these issues are currently highly contentious, there is the remote possibility that consensus can be reached to enact basic agreed provisions within the current Protocol text. Such a prospect for consensus will require even greater levels of effort in negotiations from all parties.

An Overview of the Current Negotiations

The Ad Hoc Group (AHG) is in its fifth year of negotiations, which started in January 1995, and met for a total of 48 weeks by June 2000. The negotiations are the culmination of a process begun many years ago. The 1986 and 1991 Review Conferences of the BWC instituted procedures that aimed to build confidence among states parties to the BWC. At the Third Review Conference in 1991 the States Parties also approved a study of possible verification measures by scientific experts, the (VEREX) process. This study resulted in the 1994 Special Conference and the forma-

tion of the AHG, with its mandate to negotiate a Protocol to improve implementation and verification of the BWC.

The AHG focus shifted from identifying protocol elements to detailed provisions, to a rolling text as a draft of the future protocol. The chairman of the AHG introduced a draft rolling text at the beginning of the seventh session of the AHG as a basis and framework for the on-going discussions and negotiations. Delegations debated the text, inserted new concepts, and added text to many of the contentious issues that served the needs of all States Parties. The text expanded, and by the end of 1998, it contained nearly 3,200 pairs of square brackets. In 1999, each Friend of the Chair (FOC) produced Part II of the text to facilitate identifying possible solutions to negotiated issues. During the September–October 1999 session, negotiations achieved considerable progress in consolidating text and moving toward the common goal of a Protocol. Progress is reflected in three achievements: a reduction in alternative language and the deletion of repetitions across the text, resulting in a more coherent whole; a reduction in the number of working papers submitted to the AHG, indicating that the necessary elements were already within the rolling text; and new language to address previously contentious issues, such as the "NAM and Other States" paper on "Visits."

Informal consultations, including bilateral meetings, are becoming a preferred forum by delegations in respective groups of states, and by the Group Chairman. For example, during the September–October session, a total of 97 formal and informal meetings took place. Outside the AHG, other international organizations have begun to take an interest in how the identification and implementation of cooperative programs might facilitate the achievement of such common goals as fighting emerging and reemerging infectious diseases.

Within the rolling text, there has been a marked improvement in the status of certain key Articles. Definitions and Criteria in Article II have been streamlined, cross-referenced and addressed *vis-à-vis* their role in the declaration formats, declaration triggers, visits and investigations. The issue of "visits" as part of the procedures for declaration follow-up is becoming more coherent. The investigation elements of the Protocol are progressing at a good pace. Finally, specific measures for the enhancement of Article X of the Convention have been identified and brought together in a more coherent whole in Article VII of the Protocol. This does not imply that few problems remain. The AHG must still address many issues, including: the definition of basic terms in Article II, and the impact that "objective criteria" might have on the General Purpose Criterion of the Convention; the remaining differences over the scope of declarations and visits in the compliance measures text; the resolution of investigation procedures, their nature and the underlying decision-making process (red light or green light); and the question in Article VII of transfer control arrangements and the relationship between the obligations of Articles III and X of the Convention have yet to be addressed.

Some of these issues are more fundamental than others. Nonetheless, all of the elements necessary for completing the work of the AHG are in place. At this juncture, what lies before the AHG are the key and most difficult topics. For many States Parties, these issues are of fundamental importance. Assessing what has been achieved and examining all the elements together reveals a convergence of factors pointing to the next phase of the negotiations: the move to the "endgame." The question, therefore, is whether the last session in 1999

and the early sessions in 2000 initiated the "endgame?"

The States Parties of the BWC at the Fourth Review Conference called for the completion of the work of the AHG "as soon as possible before the commencement of the Fifth Review Conference," and submission of its report to a Special Conference. At the Fourth Review Conference it was agreed that the Fifth Review Conference shall be held "not later than 2001," thus continuing the tradition of five-year intervals between review conferences. Assuming that States Parties follow existing practice, the Preparatory Commission (PREPCOM) for the Fifth Review Conference should take place in the Spring of 2001. The steps that need to precede the PREPCOM are the completion of the work of the AHG, the adoption of the work of the AHG by the Special Conference of States Parties, and the Signature Conference. Each of these steps would need a sufficient lead-time of weeks, if not months, to be completed prior to the PREPCOM. They would also provide the clarity needed to the final shape of the Protocol, and but also highlight those States that have signed up before the review conference starts it work.

If the AHG moves into the final stage of its negotiations in 2000, there is no need to dwell unnecessarily on issues simply because the time is available. All of the available time might be required, but the States Parties agree that the completion of the work of the AHG and the Protocol to the BWC are important objectives for the international community, which should expedite the process. Thus, progress should be made as quickly as possible, without losing sight of the importance of producing a legal product of high quality. The AHG has managed to reduce significantly the number of brackets, especially as during the September–October session. Their number has fallen from 3,200 to 2,000. Proportionately, we now have 30 percent fewer brackets in the Protocol rolling text than the draft CTBT contained in April 1996, four months prior to the conclusion of the negotiations. The most difficult issues are now being addressed. In the September–October session, for the first time in the history of the negotiations, a massive removal of brackets in areas of prime importance and high complexity took place. Complex technical aspects still need to be refined, but the majority of the decisions facing the AHG are political in nature and thus require the most serious engagement of all parties in an active manner.

The year 2000 marks both the seventy-fifth anniversary of the 1925 Geneva Protocol and the twenty-fifth anniversary of the entry into force of the BWC in 1975. It is up to the States Parties to mark both anniversaries with achievements commensurate with the moral and political legacy they set for contemporary global security and multilateral arms control. The opportunity to complete the work in accordance with the mandate is before the States Parties.

Proposed measures to verify compliance with Articles I and III

Mechanisms to verify compliance with the BWC started in 1986 in the Second REVCON of the BWC; when States Parties introduced Confidence Building Measures (CBM's). At its March 2000 session, the AHG analyzed how the latest rolling text related to proposed measures to verify compliance with Article I and Article III of the Convention.

Article I and Article III of the Convention prohibit the development, production, stockpiling, acquisition, retention and transfer of biological agents and toxins when there is no justification for prophylactic, protective or other peaceful purposes. This also prohibits the weapons, equipment or means of

delivery designed to use such agents or toxins for hostile purposes or in armed conflicts.

The compliance measures described in the rolling text include: Declarations/Notifications, Visits and Investigations. The Protocol establishes triggers and procedures for each of these measures. The triggers and the description of the procedures offer the opportunity to evaluate their applicability to prohibitions described above. The results of the evaluation indicate that the vast majority of the current compliance measures for Article I and Article III of the BWC apply to "Production of biological agents or toxins," thus leaving other elements such as weaponization with very weak provisions, if any.

Promoting measures involving the World Health Organization (WHO)

The struggle against infectious diseases and biological agents in general is an important topic. As an historical reference, recall that Pasteur was the first one to work on Anthrax *(Bacillus anthracis)* and produce a vaccine.

At the beginning of the twentieth century, with the discovery of antibiotics, infectious diseases were seen as a threat that would eventually disappear. A few years after penicillin's extensive use, it had become apparent that some agents could resist this antibiotic. A period of scientific expansion followed, which led to the discovery of new antibiotics that would kill infectious agents. We know that reality is very different, and that an increasing number of strains are able to resist antibiotic therapy. The overuse of antibiotics has also had an adverse effect at the end of the twentieth century, as simple standards of hygiene have eroded. For example, it is less common to see individuals wash their hands before eating.

Thus, the environment is not as safe as imagined. Many diseases are persisting and the frequency of polyresistance to treatment is increasing in hospitals. Resistance is not limited to hospitals, but appears most frequently in the developing countries with poor hygiene standards. Many diseases that we believed to have eradicated are now reemerging. Air transportation, destruction of forests and climatic changes have fostered the emergence of new diseases, such as Ebola and other hemorrhagic fevers. Each day epidemiological networks such as Promed, Gphin and WHO report outbreaks of diseases somewhere in the world, both in developing and western countries. This environment of daily outbreak has an indirect effect on the negotiations in Geneva.

To face this new world and the emergence and reemergence of so many diseases, the WHO is changing its policy of mandatory declaration of diseases and intends to focus its work on syndromes including:

- Acute hemorrhagic fever syndrome,
- Acute diarrheal syndrome,
- Acute respiratory syndrome, and
- Acute neurological syndrome.

This will allow reporting to increase from the three diseases now required to possibly hundreds. WHO obtains information on disease outbreaks through its employees located throughout the world, as well as through the various nets. However, it does not have the means to supply the information sought by a future BWC protocol.

When an outbreak arises, WHO has its own correspondents on site to face the situation, to relay information, and to provide intervention if necessary. WHO also has established contacts with national authorities, and in many countries it has laboratories that can help to identify the infectious agent. Unfortunately, these laboratories are limited in

number, under-equipped, and their personnel often lack current knowledge. This is the main area in which WHO would like to interact with the protocol. WHO seeks to obtain financial support to strengthen the capability of these laboratories, especially in reagents and equipment, and to ensure the skill maintenance of its personnel at the highest level. WHO has recently created a group, composed of NGO's, called Alliance. This group intends to collect donations from countries, and if possible, from the future BWC Organization, to strengthen the existing WHO laboratories.

The future BWC Organization needs the following items from the WHO:

In order to be able to distinguish a natural outbreak of disease from an intentional man-made outbreak, the future Organization needs to have access to the existing information collected on all existing networks, including the reporting and analysis of the WHO.

Information gathered over the period of time in which a disease has occurred in a country will facilitate a rapid determination of the appropriate degree of suspicion, and prevent abusive claims. Analysis of historic outbreak data allows evaluation of the possibility that an outbreak is a natural occurrence. For this reason it is important to obtain the relevant information for every outbreak within the borders of States Parties. This "declaration" constitutes, in many ways, a safeguard against abuse.

For many diseases, there exist only a few experts able to identify, diagnose and respond to a specific disease. WHO involves these experts at the onset of an outbreak, and it would be counter-productive for them to be working for the future BW Organization at the expense of the WHO work. There must not be any type of competition between the two organizations for the services of these experts. WHO experts may be at the disposal of the Organization after an agreement between WHO and the Organization is in place to ensure that conflicting work will be avoided. It would also damage the trust WHO fosters in a country experiencing an outbreak if it appears to be staffing the future BW Organization. The relationship between WHO and these countries is based on trust and help, and one must understand that the occurrence of an outbreak and the way it is monitored can have a severe impact on the economy of the country. For example, no travel agency wanted to send people to India during its outbreak of "Surat Plague" in 1995. In the face of such a risk, tourism simply was suppressed, causing India to lose a huge amount of money from business and tourism.

Certain realities must be faced about the impact of BWC negotiations. Developing countries and particularly the Non-Aligned Movement (NAM) countries have to face outbreaks throughout the year. The threat for them is not to be attacked by biological agents, but to be unable to face the consequences of an outbreak on their population and economy. Through the future protocol, they would like to obtain as much technology as possible to protect their population, to identify and diagnose agents quickly, and to contain the outbreak. When they speak of strengthening the biological convention, they mean strengthening Article X; for them, export controls are against their interests.

Western countries evaluate the problem quite differently. Having fewer problems with outbreaks and a better level of therapy means that the perceived threat is that of the intentional use of biological agents. Biological agents can be produced with relative ease, thus to increase security means strengthening the Convention through banning and preventing the intentional use of biological agents. How-

ever, in addition to what is already being done, western countries need to address outbreaks of diseases by providing more laboratories and experts to help when necessary and with the agreement of the host countries. Such help is important, not from a disarmament perspective, but from the public health and humanitarian point of view. However, it would not be appropriate for the Protocol to force western nations to do more on these grounds. It is rather a sovereign decision to help selected countries, and it would not be acceptable to have a "Cooperation Committee" dictate these choices. The wording on the mandate of this Committee will have to be carefully set. It would be ill advised for existing nonproliferation instruments, such as export controls, to be damaged in any way by the future Protocol.

The protocol has to emerge from these different interests and goals. The border between public health and disarmament is always clear. Article X will play a huge role in the success of the negotiations. The question of export controls may not be as important to the NAM if the relevant health technologies can be found in their countries, and in that sense the WHO can play an important role. WHO could act as the bridge between the opposing goals, serving as a tool to facilitate compromise.

To illustrate the role of WHO, on May 16, 2000 the French government announced an agreement it had signed with WHO. A new WHO center for epidemiological survey has been created in Lyon. The center will serve to train health technicians from developing countries in techniques of identification and diagnosis of many diseases, and will strengthen the capacity of their laboratories in terms of equipment and reagents. France has given WHO a building, and will support the center with a donation of US$20 million over a period of five years. Biomerieux, which has a BL4 laboratory in the vicinity, agreed to be involved with the project, and will support the center in the amount of US$10 million over the same period.

Collaboration is necessary between the future BWC Organization and WHO, especially in difficult situations that border on both disarmament and public health. This association may allow all negotiators to meet their goals without compromising security requirements.

Protocol Confidentiality Rules

Three related points concerning the evolving BWC Protocol were also addressed. First, the confidentiality provisions as a safeguard for industry —t he importance of such provisions and the difficulty of crafting them in a world with dual-capable materials, equipment, and technology. Second, the legal impediments that surround implementation of such provisions in the United States — the limitations upon official "search" activities expressed in the U.S. Bill of Rights. Third, the comparative value of legally binding and politically binding provisions of this sort — the importance of laws to this operation. One major point made was that most nations are compliant with BW arms control treaties except in limited instances. In addition, confidentiality is also exercised, even though it may not be legally binding.

Preventing Large Scale Bioterrorism

The rolling text of the future BWC protocol and its non-implication on large-scale bioterrorism was examined. However, nations that are signatories or State Parties to the Convention and the future protocol will pursue implementation through national legislation, rules and regulations that will eventually curb large-scale terrorism.

Summary

The panel session discussed the significant steps made toward achieving an agreed protocol through the advent of the rolling text, the lessons learned from the CWC, and the activities of the AHG. Further progress can be made if health care concerns of developing nations are considered and the data collection infrastructure of WHO is improved.

Panel members also observed that ensuring confidentiality within the protocol will provide a safeguard for industry. Verification and compliance of elements such as weaponization remain weak within the protocol. The Convention itself has no direct impact on reducing bioterrorism, but the actions States Parties pursue domestically will eventually curb large-scale terrorism.

PANEL 6
Implementing Big Treaties: The Growing Role of International Organizations

Chair
Ambassador Jose Mauricio Bustani
Director General, OPCW

Mr. Mikhail Berdennikov
Special Assistant
to the Director General, OPCW

Mr. William B. Davitte
Director of Administration,
CTBTO

Mr. Charles Duelfer
Former Deputy Executive Chairman,
UNSCOM

Dr. Owen James Sheaks
Senior Advisor to the Under Secretary
of State for Arms Control
& International Security

Mr. Ron E. Stansfield
Senior Policy Officer,
IAEA

Introduction

The rapidly changing post Cold War environment which has been characterized by globalization, advances in high technology, shifting international alliances and a surge in proliferation threats has brought the role of international arms control organizations into the spotlight. These organizations are taking on new and larger responsibilities but also face serious challenges in meeting the needs of their member states. The panel speakers addressed these challenges by focusing on efforts from both the member states and the international organizations.

The Role of International Organizations

Historically, international organizations have not had a big role in implementing arms control treaties. The reason for this is that until most recently, they have not been allowed to take on a significant role. Rather, the geopolitical environment during the Cold War was more conducive for bilateral treaties between adversaries that reduced tensions through adversarial and coercive verification. Multilateral agreements were concluded among allies to establish collective security arrangements. International organizations, such as the International Atomic Energy Agency (IAEA), which used multilateral and cooperative means for verification only became a minor component of state's global security structures.

The nation-state system is not functioning as it had in the past, causing difficulties for states to meet the global security needs unilaterally or bilaterally. Two forces have been acting upon the system. The first force is that states are fragmenting into small ethnic pockets. The governments of these states tend to be myopic, regionally oriented and view the

world in a zero sum game. They lack the capacity to pursue their international security interests at the global level. Another factor working against the nation-state's ability to meet its international security interests is that interdependence among states is growing. Interdependence is driven by the globalization of the world's economy, advancements in technology and the permeability of frontiers.

The effect has been to create a highly destabilized global security situation. Thus, governments have developed a need to use international arms control organizations to achieve their goals. As a result, these organizations responsibilities have increased, particularly in providing verification services to disarmament agreements. For example, in 1996, Russia and the US agreed to allow the IAEA to verify excess fissile material from disarmed warheads. Additionally, the UK also submitted excess weapons-grade material for verification. Now states are considering assigning a role to the IAEA in verifying a cut-off treaty.

Verification levels are increasing not decreasing. For many years, the IAEA had only limited rights of inspection under classical safeguards until revelations were made that Iraq had a clandestine nuclear program. Since then, openness and transparency has become more acceptable especially as the public gains access to information due to advances in technology. The IAEA Model Protocol was adopted to enable the Agency to detect clandestine activities as well as diversions.

The increasing reliance on international arms control organizations has been a natural evolution. International organizations form the building blocks of establishing an arms control regime, which in turn assist in building security. International organizations are independent, non-partisan and objective in nature. Therefore, they can facilitate contact among states, mediate disputes and independently initiate activities that states cannot necessarily promote on their own. This is to the benefit of the states and others. Through verification, international organizations can provide greater assurances than the simple word of the state. A verified international agreement can assure states that rivals will not acquire WMD. International organizations also aid in fostering peaceful cooperation by creating norms and setting standards.

While international organizations are relevant in the current environment, they are far from perfect. For example, the IAEA must deal with members who do not adhere to the NPT's rules. The Treaty is also not universal and it is considered discriminatory. Nevertheless, it is one of the most successful arms control regimes in existence. In another example, the information that international organizations collect is limited and may achieve the same results that unilateral efforts can yield by using high technological or intelligence means. However, information such as the raw data distributed by the Comprehensive Test Ban Treaty Organization (CTBTO) has been useful to member states.

International Organizations — State Relations

States' security analysts need to reassess what role they would like international organizations to play in future global security structures. To date, it appears that domestic security planners have not acknowledged the value of the additional security provided by international treaty organizations. It is up to states to choose between competition or cooperation, unilateralism or multilateralism, and opacity or transparency.

With proper structures, funding and support, international organizations can serve as effective threat reduction mechanisms.

Political and financial support is critical for organizations to be effective. In the case of CTBTO, political and financial support was central in building trust and confidence between states and the organization. However, currently, many international organizations are struggling financially.

Without financial support, international organizations can lose their credibility. The OPCW has added to its inspection list 4,000 sites which have discrete organic chemicals that are included in the CWC. However, due to funding problems the organization is authorized to carry out inspections at only 6 of those facilities. This type of situation points out that states need to rethink what sort of credibility they want the organizations, to which they are party, to have. In another instance, a lack of funding was the driving factor behind the United Nations Special Commission's (UNSCOM) failure in its mission to dismantle Iraq's WMD program. In spite of what UNSCOM believed was considerable evidence of Iraqi non-compliance, the UN Security Council members refused to financially back the organization in implementing its mandate.

States need to improve their performances in meeting treaty obligations. With regards to CWC, only a third of state parties that ratified the treaty submitted initial declarations on time. This behavior undermines the effectiveness of the international organization. Moreover, when the US industry was late with its declarations, inspections in other countries had to be delayed. Consequently, the delay not only disrupted the OPCW's operations but also diminished its reputation since some perceived that the US was getting special treatment. Since the OPCW conducted industry inspections in other countries first the US must now follow those precedents. This incident is contrary to the situation that occurred in regards to OPCW inspections of US military chemical installations. In this case, the US worked closely in developing inspection approaches with the OPCW and assisted in setting precedents.

Compliance

Compliance is a critical issue that states need to address in the future. There are two schools of thought regarding compliance and international organizations. One school of thought argues that international organizations that enforce multilateral treaties have an advantage over bilateral agreements between states. The school further believes that a broad membership found in multilateral treaties can exercise greater influence in enforcing or coercing compliance, resolving a situation in a more timely manner. Another school of thought argues that coercive actions within a coalition are not successful because, over time, interests of the coalition members are likely to diverge. As a result, unitary actors have a distinct advantage over a coalition and nonproliferation is not viewed as an immediate threat but rather a long-term emerging threat. Therefore, divergence will likely occur at a considerable pace.

The case of Iraq demonstrates other problems with coercive disarmament. Iraq did not allow inspections due to a cease-fire arrangement. In fact, Iraq believed that WMD served as a deterrent in the war with Iran and deterred the allies from occupying Baghdad. Iraq hardened its attitude and continued to engage in illegal activities. For UNSCOM to fulfill its mandate, the occupation of Iraq was necessary and Iraq needed to change its security concept which supported the use of WMD. To further support the case against coercive disarmament, parallels were drawn to the time period after WWII when the Treaty of Versailles was negotiated. During this time an organization was created similar to UNSCOM to implement disarmament. The

situation again involved a unitary actor versus a coalition. Similar to Iraq, Germany did not provide accurate declarations, refused to deliver documents, argued that the inspection organization increased civilian suffering and that demobilization added to unemployment, while claiming that the inspectors were spies and were not fulfilling their mandate fairly. Also similar to Iraq, Germany maintained Research and Development (R&D) and manufacturing capabilities that could be reconstituted on short notice.

States must be held accountable for compliance. Compliance judgements tend to be highly complex while treaties tend to be ambiguous with no precedent. Therefore, each state holds a different interpretation of an organization's mandate and has different perspectives on what constitutes appropriate punishment. Thus, states need to determine what constitutes non-compliance and decide how to react when states fail to meet regulations versus a material breach. For example, what is a proper member response to the US when it delayed its required industry declarations by three years? Consensus on non-compliance is critical if action is to be taken against an errant state. In making these determinations states need to consider at what point does behavior become a material breach and at what point does non-compliance reduce the credibility of the regime.

Member states need to recognize the importance of international organizations in facilitating compliance questions. Compliance is a function of an international organization's ability to harmonize technical capabilities, diplomatic objectives and minimize tensions. Structuring an international organization to deal with compliance is difficult since an organization's mandate must match its structure and abilities. For example, UNSCOM experienced problems because it had no control over carrots and sticks offered to Iraq and its mandate required categorical disarmament of Iraq's entire WMD program. When a substantial portion of weapons were found, the coalition started to fall apart because finding the remaining bits was more difficult and costly.

While each state makes its own determination of compliance, it must rely on the filtering that occurs within the inspection organization. This adds a new dimension to the compliance process and can become a source of tension where poor state-to-state relations exist. For that reason, it is critical that all members attempt to demonstrate transparency when questions arise. International organizations also need to encourage its members to be transparent. To address this problem, international organizations need to maintain high technical capabilities. Therefore, funding is crucial.

Universality

Universality is a key concern with regards to enhancing international organizations, although some organizations presence in regions have been problematic. In some instances, de-linking international organization participation from regional issues would likely make strong contributions to resolving regional tensions. This is especially the case in the Middle East where only a few states are party to the CWC, where chemical weapons are widespread and have been used.

There are other reasons why states do not join multilateral treaties. Some states believe that if they do not have a class of weapons in question, they do not need to join. This demonstrates the lack of understanding of how multilateral treaties function. Others have not joined control regimes due to frustration with the lack of peaceful cooperation, problems with passing domestic legislation and budgeting issues. Some states are delaying CWC mem-

bership as they appear to be destroying their chemical weapons before they join the regime. Ideally, the more influential states, including the UN Security Council and the P-5, need to increase pressure on non-members.

Proper Planning

States need to avoid past mistakes when setting up international organizations. First, it is critical for planners to establish an accurate first budget and staffing table. Often these decisions are made with poor data and in hurried circumstances. These two elements serve as the foundation of the organization and determine its ability to operate efficiently. Correct financial planning sets the tone of the secretariat's ability to execute a new organization's budget properly. If the budget is too large surpluses arise and subsequently states will seek lower budgets which is counter intuitive to setting up an organization since the infrastructure and framework will require a rising budget. Once the budget is set it is difficult to change and when the budget is too high or too low states' loose confidence in the secretariat. States can aggravate the situation when they attempt to micromanage how the money is spent.

A significant portion of the administrative activities of international organizations could be more efficient if international organizations were permitted to outsource some of their administrative activities to commercial entities or NGOs. When setting up organizations, states often over look personnel who serve as creators and are distinctly different from those who maintain organizations.

International organizations need better rewards and quality control systems. States and international organizations need to consider how to measure an international organization's performance since there is no profit or loss statement. Possible considerations include: organizations setting up benchmarks with regards to the delivery of goods and services, comparing other international organization models or viewing US government models. While salaries are reasonable, a personnel reward system is needed to offer workers incentives for delivering good services.

As globalization continues, international organizations may need to engage in more cooperative efforts to address issues that arise in arms control. Although organizations cannot share some operations due to political sensitivities, integrative tools may nevertheless be useful to enable them to share information and common services. Efforts could also be made to set up standards for information infrastructures for future collaboration.

Summary

The panelists all agreed that the role of international organizations has changed over the past few years and will continue to do so in the near future. In moving forward, international organizations and states will both be engaged in a learning process. International organizations need to implement new policies to avoid repeating past mistakes and focus on ensuring that they continue to provide quality services.

On the other hand, States should reevaluate the role that international organizations play in their security structures and states should consider whether the support given to these organizations is sufficient to meet the growing demands placed on them. States also need to put more effort into addressing some of the key challenges facing international organizations including the issues of universality and compliance.

LUNCHEON SPEECH BY
Dr. Jose Bustani,
Director General, OPCW

One should expect that in today's world, globalization should lead to an increasingly multilateral arms control process. But does multilateralism — as opposed to unilateral action or bilateralism — work in the area of arms control and disarmament? This question has in many respects become the central issue in the debate over the future of arms control in the post-Cold War era, particularly following the U.S. Senate's vote last autumn not to ratify the Comprehensive Test Ban Treaty.

You will all be familiar with the arguments on both sides of the debate, but let me briefly remind you of just two of them. In an article which appeared in the *New York Times* on October 13, 1999, Mr. Gates wrote and I quote: "Multilateral cooperation is absolutely essential to slowing down or containing such threats as chemical, biological and nuclear weapons proliferation and the spread of ballistic missile technology. But I question whether formal, ratified treaties are the most effective way to deal diplomatically with such threats. Multilateral treaties often offer only a pretense of effective monitoring. Furthermore, treaties "in perpetuity" are nearly impossible to adjust to today's rapidly changing technological and security realities. And to ratify a treaty when we can confidently predict that key governments will either not sign it or, if they sign, will not observe its terms, undermines the legitimacy and value of the arms control process itself."

Another view was expressed by President Clinton in his March 16, 2000 remarks to the Carnegie Non-Proliferation conference. The President said, and I quote: "I know that there are some who have never seen an arms control agreement they like — because the rules can be violated, because perfect verification is impossible, because we can't always count on others to keep their word. Still, I believe we must work to broaden and strengthen verifiable arms agreements. The alternative is a world with no rules, no verification and no trust at all. It would be foolish to rely on treaties alone to protect our security. But it would be foolish to throw away the tools that these treaties offer. A more predictable security environment, monitoring inspections, the ability to shine a light on a threatening behavior and mobilize the world against it."

You will, of course, expect the Director-General of the Organization for the Prohibition of Chemical Weapons — a multilateral disarmament organization — to urge you to support the second view, if only out of petty vested interest. The United States, after all, contributed 25 percent of the OPCW's budget.

I am not, however going to give you a definite answer on where I finally stand. I would rather leave it to each and every one of you to reach your own conclusions. My objective rather is to share with you some of my thoughts on this very important subject. After all — money is not an issue here. International Security is.

Let me first of all point out that the debate about whether one should rely on multilateral arms control treaties, or instead put emphasis on unilateral actions, is not a new one. It has been part of the wider consideration of the relationship between global disarmament and other non-proliferation

strategies, such as technology denial, enforced disarmament, or regional agreements, that has gone on for many years, even decades.

The most recent round of this debate in the U.S., in my view, has been taking place at a level of abstraction that tends to ignore some essential details of this complex issue. Perceptions of the U.S. arms control community regarding the efficiency and credibility of multilateral disarmament mechanisms have in recent years been most vividly shaped by:

- The failure of the IAEA some years ago to react more effectively to indications about the North Korea nuclear program;

- The inability of the former IAEA safeguards system to detect Iraq's clandestine nuclear weapons program;

- Soviet violations of the Biological Weapons Convention;

- The nuclear tests by India and Pakistan, both deciding to remain outside the NPT regime; as well as

- The frustrated UNSCOM experience.

The problem with the UNSCOM mechanism, in particular, is that it cannot be used as the basis for generalization since it was effectively a one-off make-shift solution and lacked the seal of multilateral agreement. Any such generalization ignores some fundamental differences with regard to multilateral disarmament treaties. The problem with all of them is that they obscure the fact that, overall, the overwhelming majority of states in today's international system are fundamentally law abiding, even some of the so called "rogue states," and that they comply with their multilateral arms control undertakings. In short, the multilateral process has, overall, worked well, and it is indeed unfortunate that its image has suffered, and that it is today under sustained attack because of the past misdeeds of a few. Robert Litwat, a former senior official at the National Security Council argues in a recent book that the "rogue" epithet "demonizes a disparate group of states" and "significantly distorts policy making," and in the case of the CWC, concrete compliance issues.

While much has been said about the failings of multilateral arms control attempts, regrettably little has been said about the few but notable achievements of such an approach. The media in some countries, it seems, has decided to maintain a complete blackout on any good news in this regard following, in reverse order, the saying "no-news — good-news."

It is my intention today to seek to redress the situation by pointing to one particular success story which, I believe, is the Organization for the Prohibition of Chemical Weapons — the OPCW — of which I have the honor to be Director-General. I hope to demonstrate to you that the OPCW's experience confirms so far that multilateral disarmament can work, and that it can provide a guide for the establishment of other multilateral disarmament regimes beyond the chemical area, particularly in the nuclear and biological areas.

I should also say that having been on the inside of the international activities to implement the Chemical Weapons Convention enables me to speak with some authority on the subject. This authority is based, among other things, on our experience gained in implementing the most ambitious multilateral verification mechanism ever devised, which includes having carried out almost 800 inspections in 35 countries around the world during the three years since entry into force of the convention — an average of 5 inspections per week — and an in-depth analysis of

declarations and inspections back at the OPCW Headquarters.

To start with, critics of multilateral disarmament tend to think of the multilateral treaties as unwieldy talk shows where every decision requires consensus. Following this logic, any consensus, being a compromise among many players, becomes meaningless. Consensus is, indeed, an important principle in a multilateral environment and there are valid reasons to uphold it. Decision making by consensus is not as expeditious as voting, but at least the decision is one to which all involved subscribe. Consensus is not easy to obtain while a treaty is being negotiated, unless all sides are either equally happy or equally unhappy with a particular solution. Consensus, however, less difficult to obtain when it comes to applying — rather than negotiating already agreed criteria. In other words, consensus is easier to achieve when implementing a Treaty. In addition, the ever present threat of a vote helps assure that consensus is not blocked indefinitely.

Critics also cherish an illusion that the multilateral environment prevents individual States Parties to the Treaty from taking action, while remaining within the Treaty's limits, either individually or collectively, say on a regional or other basis.

Indeed, nothing could be farther from the truth. Take the Chemical Weapons Convention. It provides for a variety of ways in which compliance with the treaty can be verified and ensured.

The cornerstone of this system is the provision of the Convention under which key parts of declarations submitted by States Parties, and, certainly, chemical weapons related information in its entirety, are made available to all other States Parties on request. This means that any State Party which may have information or a concern about a particular site or activity in another State Party can readily make itself aware of whether the relevant information has or has not been declared. The sharing of declaration data establishes the basis for national compliance assessments. In the CWC environment the entire body of information available to State Parties individually can be utilized to check the accuracy of any one declaration submitted to the OPCW. Any state can ask: "Why have they not declared this particular site or activity which we are aware of?"

Equally important, is that the CWC also provides for follow up mechanisms, either within the institutional framework of the OPCW or by taking action unilaterally if a State so prefers. The OPCW welcomes the fact that some State Parties have actively pursued this mechanism, and have engaged in bilateral and other consultations to clarify concerns about declarations submitted by their convention partners. In other instances clarifications were requested, received, and verified by the Secretariat. As a result of this activity a number of facilities that posed concerns have been destroyed thus resolving the issue and contributing to the achievement of the goals of the CWC.

The alternative, unilateral actions in the field of arms control and non-proliferation, can hardly be preventive since, by their very nature, they are taken in response to a specific threat. Multilateral arms control, on the other hand, also serves a broader confidence-building and preventive function.

Another key element of the CWC is the elaborate and well balanced system of verification measures which enables individual States Parties to utilize qualified impartial international expertise to address any of their compliance concerns. This is less important for countries like the United States, which

possess strong technical and national intelligence gathering potential. Such a capability is, however, critical to the majority of countries around the world that may not have any of the relevant expertise and would, therefore, have great difficulty in identifying a chemical weapon or a chemical weapons production facility even if they saw one. Even for a country like the U.S., the OPCW's multilateral verification mechanism offers an agreed procedural framework for the OPCW's inspectors to gain actual access to such a site where otherwise access may be limited to a certain national technical means. In addition, NTM in the case of chemical installations are less satisfactory.

In fact, some of you tend to view this element of multilateral verification with some suspicion. Let us be honest. There are some among you who continue to believe that unless a site has been inspected by an inspector from your own country it has, by definition, not been inspected at all. Chemical weapons technology is of course well known here. It is, however, largely the chemical weapons technology of the U.S. or the Russian Federation. This may be a disadvantage when assessing whether a particular building in a remote region of the world was or was not utilized for chemical weapons-related purposes. Familiarity with the local manufacturing and safety practices as well as a range of other factors needs to be taken into account.

The fact that we have a pool of highly qualified and well-trained inspectors from 57 countries on all continents and, where necessary, we are able to include in our inspection teams inspectors with a local background gives the OPCW inspection process a clear edge over others. Combined with the experience gained over the past three years, during 350 different facilities of all types in 35 States Parties, our unique Inspectorate makes the OPCW verification mechanism much more effective and trustworthy. For those who doubt this I suggest that you visit the OPCW in the Hague and see how we work. I fully accept that if we are to be honest with each other, "trust, but verify" must apply not only to the verification of disarmament treaties but also to those, like you, who oversee the process.

The drafters of the Convention understood the need to keep fact-finding free from political interference. As the Director-General of the OPCW I firmly stand behind by such an approach. Only if it is free from such constraints can fact-finding be truly effective. While our confidentiality policy limits me from going into too much detail in an open forum, I can assure you that the OPCW has already demonstrated that our impartial "multilateral diagnosis" was more accurate than the one made by national experts from some of our Member States. And this was graciously accepted by those involved.

To be truly verifiable any treaty must also be well balanced. While all verification regimes have some common elements, all of them must be tailored to the subject of the particular treaty. In other words — you can prohibit only what can be effectively verified. Steps that follow verification in respect to assurance of compliance need to be carefully considered as well. I believe that the CWC may be one example of such balance, although, of course, there are areas where further improvement remains desirable. The CWC combines declaration requirements from Member States, routine inspections which are run by the Secretariat, and challenge inspections and investigations of alleged use that can only be launched at the request of a State Party. This layered concept represents the CWC's own system of checks and balances.

Furthermore, the Chemical Weapons Convention pioneered what is now called the "red light concept" — meaning that any chal-

lenge inspection goes ahead unless three fourths of the 41 Members of the Executive Council decide to halt it. Thus, once a challenge inspection has been launched, it is, for all practical purposes, virtually unstoppable. This mechanism makes it an effective deterrent against non-compliance. Change this concept to the so-called "green light formula" where an inspection could only proceed when three fourths support its conduct, and I would be the first to vote against such a treaty. The "green light approach," which is being considered with regard to the implementation protocol to the BWC, would make effective verification more difficult as the risk of surprise inspections would all but disappear.

Having said that, I regret the unilateral restrictions imposed by the U.S. on the challenge inspection mechanism — in particular, the provision to deny access on "national security" grounds. This reservation undermines the credibility of a concept for which the United States was a champion for many years. There are already signs that the U.S. action has prompted others, like India just recently, to follow suit. Thus eroding the credibility of CWC's challenge regime. However, on the other hand, the statement made by the Federal Republic of Yugoslavia at the recent session of the Conference of the States Parties — yet to be tested in practice — mentions, and I quote, "we have no problem in receiving both regular inspections and inspections by challenge."

Only a multilateral treaty, such as the CWC will, over time, lead to increased transparency regarding the movements of critical materials subject to verification, in our case chemicals, around the world. This information in case of the CWC is not only the result of data being declared and analyzed by the OPCW. More importantly the treaty implementation forces National Authorities and other agencies into regular and direct contacts with their partners in other States Parties to reconcile data and identify possible problems in their national monitoring and reporting systems. Patterns emerging in this regard may be particularly helpful in identifying potential areas of concern with regard to compliance with the Convention. Compilation of this data would not be possible by any one nation, outside an appropriate multilateral legal framework.

One should also not disregard the "usability" of routine inspections. The threat of being exposed reduces the probability of illicit actions without, of course, entirely eliminating it. In fact, now that the OPCW has largely completed its initial inspections of the declared Schedule 2 facilities around the world, with the exception of the U.S. where they just started, we intend to be much tougher about discrepancies between the quantities of chemicals declared and verified which, in the initial phase, were largely due to lack of experience with the filing of declaration forms.

As the membership of any treaty grows so does its authority. The Chemical Weapons Convention counted 87 States Parties in April 1997 when it entered into force. Three years later the OPCW membership has increased by more than half. Now we have 135 Member States. The two latest additions were the Federal Republic of Yugoslavia and Malaysia. It obviously consolidates a norm of responsible behavior in the international arena.

The fact that one represents the collective will of 135 countries around the world does help in clarifying the inevitable discrepancies, which surface in our everyday verification activities with any one State Party. A clear, firm statement — in private, of course — of the Secretariat's intention to place a particular issue on the agenda of the Executive Council if the State Party concerned does not take appropriate corrective action —

has almost invariably produced positive results and changed attitudes to increased cooperation. In one particular case this tactic ended a long standing dispute between one particular State and a group of other States which could not be resolved during the entire four years of existence of the Preparatory Commission for the OPCW — from 1993 to 1997. Only on two occasions has the Secretariat actually been forced to bring issues to the attention of the council.

This approach will only remain convincing, however, as long as the OPCW remains impartial and professional. These attributions have become our trademarks. Our firm guiding principle in the implementation of the Convention is the doctrine of equal application for all, irrespective of size and/or political affiliation. To prove this point the OPCW was justifiably praised by the UN Secretary-General for its very professional job on closing the UNSCOM's laboratory in Baghdad in a very charged political environment.

One argument of the critics of multilateral disarmament agreements is that such treaties become outdated. However, the CWC does have a mechanism to stay abreast of technological developments which, demonstrably, has worked and we are now witnessing promising developments. States Parties have already introduced one change to this Treaty — to regulate transfers of saxitoxin for medical purposes. My Scientific Advisory Board has also submitted a number of recommendations — and two have already been adopted by the conference — which place the Treaty more in tune with the current developments in the field of chemistry.

It is, however, also true that any Treaty — no matter how good on paper — will only deliver the desired result if it is properly maintained and regularly serviced. At the risk of being seen as preaching the obvious, this does mean adequate funding. There are international organizations and *international organizations*. I am not implying that some are less important than others. I am saying, however, that those dealing with international security matters, and which deliver the required product, clearly earn and deserve proper attention. Those of you who have participated in the panel which I had the honor to chair this morning will have noticed the projected increase in the verification activities of the OPCW. Moreover, from May of this year nearly 4,000 new inspectable facilities — so called DOCs, plants producing discrete organic chemicals — were added to our inspection plan. More importantly, we expect additional CW destruction facilities to go online during the coming years. Verification of CW destruction already consumes 70 percent of our inspector resources. Our budget for 2001, which has just been adopted by our Conference of States Parties, is the third "zero growth" budget in a row. While zero growth budgets may be a feature of life for established organizations, they pose particular problems for young organizations such as ours, especially when there is so much uncertainty over the precise size of our verification tasks in the years ahead.

If member states wish to damage the credibility of the OPCW, maintaining a zero growth budget is one sure way of achieving this objective. My concern is that if this trend continues it will effectively weaken the verification regime and make it less rigid and reliable. I am not saying that in these budget conscious times one should disregard the need for fiscal discipline. However, investing in an Organization which has, in three years, ensured that one half of the declared chemical weapons production capacity has ceased to exist — through either destruction or conversion — and has thus far verified the destruction of more than 15% of the world's declared stocks in chemical munitions, seems to me not

just a prudent investment: it is an essential element for retaining the credibility of the regime. Lack of adequate investment into future needs is an invitation to take the Convention's obligations lightly. And please remember, the OPCW costs the international community only about 50 million U.S. dollars annually, of which the United States share is 12.5 million.

Finally, a few words on making the CWC more effective. The buzzword these days, particularly in the U.S., is chemical and biological terrorism. Terrorism is a global threat and an effective cure must also be global in nature. When the CWC was signed in 1993, the threat of chemical terrorism was rarely addressed in public. The 1995 Tokyo sarin attack changed all that. Even before universality is achieved, I believe that the convention could be made more effective by using its institutional and political framework for the establishment of additional links and cooperation between national anti-terrorism agencies and disaster relief organizations.

Another aspect where the Convention could be of practical value is legal cooperation. The Treaty requires that each State Party "prohibit natural or legal persons anywhere on its territory or in any other place in its jurisdiction as recognized by international law from undertaking any activity prohibited to a State Party under this Convention, including enacting penal legislation with respect to such activity" and " not permit in any place under its control any activity prohibited to a State Party under this Convention."

For example, it would seem sensible for Member States to inform the OPCW of any criminal proceedings that may be initiated in this regard. The OPCW would be able to use its good offices to secure the cooperation of other States Parties, as may be required, to assist ongoing investigations. In effect, what I am suggesting is an approach that would evolve from legal cooperation which is already required under the Convention, to cooperation in the area of investigation and enforcement and the build-up of institutional links with the help of the OPCW. With time such data could become invaluable to coordinate efforts of the international community against the global threat of chemical terrorism. It would be also interesting to explore whether the provisions of the Convention under Article X regarding cooperation could be harnessed to provide a basis for cooperation on chem/bio terrorism. I should add that even the OPCW's international cooperation program has an interesting dimension here, as it provides for exchanges in such areas as training, sample analysis and improved communications — assets that will be necessary for a coordinated global fight against chemical terrorism.

The first CWC Review Conference is only two years away. It is appropriate to start thinking now about what aspects of the functioning Chemical Weapons Convention could be brought before the Conference to ensure the continued credibility of the Convention. While much of it is, of course, the responsibility of our States Parties as well as my own, the voice of the international arms control community, as past experience shows, is extremely valuable.

Thank You.

PLENARY III
ROUNDTABLE DISCUSSION:
The Future of Preventative Threat Management

Chair:
Mr. Leonard S. Spector
Assistant Deputy Administrator
Office of Arms Control and Non-Proliferation
U.S. Department of Energy

Dr. Stephen D. Bryen
Former Director, DTSA
Aurora Marketing and
Business Development, LLC

Dr. Donald M. Kerr
Assistant Director,
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RADM Joseph E. Enright
Deputy Director for
International Negotiations,
J-5, The Joint Staff

Mr. John A. Lauder
Special Assistant to the DCI
for Non-Proliferation and Director
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Introduction

Traditional security measures are not designed to address sub-state proliferation while law enforcement measures to combat terrorism are not suited to deal with state security issues. However, these mechanisms are complementary. This session sought to identify new approaches for enhancing security and stability to meet the broad range of security threats derived from WMD proliferation and terrorism. The panel addressed the use of threat reduction cooperation initiatives that have been implemented within a framework of bilateral agreements and looked at programs of other governmental agencies and NGOs, which have been adapted to decrease tensions, reduce security threats and enhance cooperation.

State Actors

The wide range of problems encountered and challenges faced by the Intelligence Community (IC) in the environment of Non-Proliferation and Arms Control — the inter-play of state and non-state actors, the variety of weapon systems, the differing motivations, the problem of denial and deception and the advance in technologies — were addressed. The environment in which the proliferation problem is attacked and arms control (bilateral and multilateral) is effected is changing. Proliferation is a constant — not an exception — in the world. The Rumsfield Commission Report concluded that today there are more short cuts available to developing WMD on the part of both state and non-state actors. Technologies, such as *genetic engineering*, are not out there in the future, but rather, are readily available tools to graduate students who have acquired intimate familiarity with technologies already as undergraduate students.

Another related factor is generational development in the suppliers of technologies,

material and expertise germane to proliferation. The first generation of concerns centered on U.S. or West European technologies bleeding out to proliferating states. Then, the U.S. became gradually more concerned about the WMD infrastructure in the states that comprised the former Soviet Union and on a smaller scale with China, and began to examine cooperative ways to keep the technologies associated with those infrastructures from bleeding out. The world is now experiencing third or fourth generation proliferation, in countries such as North Korea. Exports of North Korean equipment and technologies have driven Iranian and Pakistani missile development programs. In the future, WMD technologies will be increasingly proliferated.

Former proliferator states and/or groups within them that are affiliated with traditional suppliers of WMD and ballistic missile systems are now approaching self-sufficiency and have emerged, or are emerging, as WMD suppliers, ushering in the next generation of proliferators. Non-traditional suppliers are often not subject to existing WMD export control regimes and many of them are estranged from the international hierarchy by perceptions of hegemony or discrimination by the worlds' powers. Proliferation incentives have increased because of new economic imperatives, nationalistic motivations, regional conflicts, and strategic relationships. Even if political decisions have been made at the most senior levels of states to adhere to international non-proliferation norms, weak internal controls existing within states exacerbate the problem. Elements within states military-industrial infrastructure, prompted by economic need or greed, are eager to enter the lucrative WMD and delivery-vehicle markets.

Private business entities, institutes, and manufacturers have become increasingly involved with trade related to weapons and mass destruction technologies. Non-proliferation controls and regimes are struggling to keep pace with this changing environment. New incentives are pushing some states, including traditional suppliers, to seek loopholes in their non-proliferation obligations or to reinterpret already subjective non-proliferation norms. Questions have been raised about the applicability of some controls and what norms are appropriate for international behavior. The increased ease of access to sensitive technologies and information has complicated the situation. The information age, while a boom to the global economy, has also aided proliferators. Tracking developments, both in terms of intelligence and arms control compliance, has been complicated by the dual nature of the related technologies.

Emerging proliferants have become proficient in denial and deception practices in their communications and procurement actions, using encryption devices in everyday business practices. U.S. traditional counter-proliferation tools — export controls, interdiction, diplomacy, some agreements, and intelligence collection and analysis — are increasingly of less value in much the same way that antibiotics that use to work against diseases in years past have increasingly become less effective as the disease itself has changed. The changing environment underscores the importance of nurturing effective partnerships, within the United States government, but outside the traditional national security communities — public health sector, NGOs, biotechnology and information industrial communities.

Despite the information explosion, or perhaps because of it, neither the United States government nor the international community does a good job of assessing the new proliferation environment in order to help identify the trends. Yet, marshaling and validating information are actually fairly simple and inexpensive tasks.

Moreover, capabilities and intentions have begun to merge as states proceed toward new types or new developments in WMD. More attention to proactively understand and influence the motivations and intentions of state actors and non-state actors who pursue, transfer, or seek WMD capabilities must be made. For those states and groups that are largely outside the reach of the traditional tools, this is particularly vital.

Influencing North Korea and similar states, sub-national groups, and non-state actors is required if the U.S. is to attain its non-proliferation goals. How does one best influence a state like North Korea — isolation, bribery, preemption, programs like Cooperative Threat Reduction (CTR), or subtle combinations of these? A new paradigm shift is underway in proliferation; it is important to anticipate and understand the emerging WMD environment, and develop requisite tools in order to manage it.

Non-State Actors

The FBI, as the lead federal agency in a terrorist crisis, deals with terrorism in the context of a crime irrespective of whether WMD or more conventional threats are involved. The U.S. outreach to other countries has notably changed over the past several years. It is largely based on bilateral relationships exemplified by the 36 countries where the U.S. has legal attachés resident in the U.S. embassies. The attachés establish and maintain liaison with counterpart law enforcement organizations. When the two U.S. embassies in East Africa were bombed two summers ago, the U.S. had established relationships with the national police forces of both Tanzania and Kenya, which allowed FBI personnel to immediately be on the ground working with police forces as invited guests and collaborators. It was not viewed as a national security matter or an intelligence matter. It was simply viewed as a law enforcement problem, driven by the fact that in both countries citizens had been killed. That kind of cooperation, without regard to politics, but with regard to solving the specific crime that was committed, is presently a hallmark of the relationships that the FBI is trying to build.

The United States has many other agencies that possess mature, sophisticated, and extremely capable people and facilities. The FBI turns to its colleagues with whom it maintains cooperative working relationships to deal with threatening problems in a timely manner. Today, a national network of facilities and laboratories is prepared to deal with threats.

The fusion of domestic and international information is also important. A good example of sharing information is evident over the 2000 New Year's weekend. The U.S. government was very much on alert for the possibility of terrorist acts, Y2K problems, or a host of other threats. The FBI did, in fact, apprehend a person coming from Victoria, British Columbia into the state of Washington who had fire sets in his car — chemicals that could be assembled to make explosives. In response, half a dozen countries across the world shared intelligence information, police information on suspects and records about immigration and travel which contributed to the fact that subjects are now in jail awaiting trial.

In the FBI criminal area real penalties and sanctions exist. They're waived less often than those in the more political realms of arms control and defense policy. Not only must the FBI investigators have the tools, techniques and capabilities to deal with WMD threats but those who later prosecute suspects must also be able to do so competently.

Finally, the aspect of how the FBI responds to terrorist acts that would be of high consequence and very low probability must be

addressed. The FBI maintains close ties with technical specialists and experts. However, there are individuals that have easy access to some of the most dangerous organisms and chemicals and for whom the Bureau has no reliable contact — where to find them.

To redress this issue, the FBI has expanded their Key Asset Program. Each of the 56 FBI field offices across the country is expected to know what key government, economic, and cultural sites exist within their area of responsibility so that persons responsible for sites can be alerted if a threat becomes apparent.

Threats will not be prevented if there is no visible response capability. To that end, considerable effort is being expended to train first responders and others in how to deal with chemical and biological threats — issuing equipment and conducting tabletop exercises, as well as follow-up exercises once or twice every two years. The training at the Hazardous Devices School in Huntsville, Alabama, (where all of the bomb technicians are trained for state, local and federal jobs) now includes a component for WMD training so that trainees will have an appreciation of the associated risks and an understanding of the procedures to follow and whom to notify when they suspect WMD.

The Bureau is concerned about the widespread use of encryption technologies. Some legislation has been proposed that would not, in any way, impede the use of encryption for a vast number of appropriate uses.

Another area of concern involves whether certain transactions of pathogens, toxic materials, or the precursors to them, should be controlled more in the international arena than in the U.S. This area needs to be clarified to enable the Bureau to move forward bilaterally with other countries and to work with countries to perhaps put in place structures against such transactions. This would open the way to pursue the threat as a legal and law enforcement matter.

The forensic area — the ability to learn from evidence or from precursors picked up in transit — provides information needed in order to attribute action to a particular group or a particular location. The FBI is working closely with DTRA and a number of other agencies on this matter.

Finally, future efforts will be focused on involving the public at large in helping the FBI. The FBI must address proliferation and WMD — *The Top Ten Proliferators* — and educate the public to participate in dealing with the risks that are involved in proliferation. To the degree that liaison with foreign law enforcement allows the Bureau to obtain early warning, early indication, and prompt resolution of cases, the FBI is a key contributor to the regime that is attempting to prevent WMD — the materials, and the techniques to build them — from becoming more widespread. The need to continue the strong level of FBI cooperation with the intelligence community, the Department of Defense, and the civil agencies of the U.S. government is paramount.

DoD Cooperative Threat Reduction

The CTR Program involves many levels of arms control negotiations with Russia and other nations in the international community with the ultimate goal of immediate and long-term threat reduction. The program standardizes relations and reduces threats by controlling numbers and locations of weapons, confirming the accountability of weapons and associated materials, increasing sound security practices and providing better transparency. Traditionally, countries do not conduct related negotiations with non-state players. To control and reduce the unwanted

behavior of *sub-state* organizations requires the strengthening of cooperation among states. The more information is sharedætracking the production and location of WMD related materials and technologies used to create and deliver WMD, technology, and procedures for securing weapons and materialæthen the harder it becomes for sub-state players to acquire and proliferate WMD. Perhaps the most successful threat reduction programs are START I and the CTR Program. The key reason START I and CTR have been so successful is that they are well supported by both the Russian and U.S. governments. This support equates to strong funding and an attitude of cooperation and problem solving, allowing programs to continue.

In 1991, the CTR was established to assist eligible states of the former Soviet Union dismantle WMD and reduce the threats of proliferation. The CTR Program has five major objectives: assist Russia to accelerate strategic arms reductions in accordance with START treaties; enhance the safety, security, and control of nuclear materials and weapons in the former Soviet Union to prevent proliferation; assist Ukraine and Kazakhstan eliminate START limited systems and WMD infrastructure; assist the former Soviet Union to eliminate biological and chemical weapons and associated capabilities; and encourage military reductions and reform while reducing proliferation threats in the former Soviet Union.

To guarantee the irreversibility of threat reduction, the CTR Program has undertaken a variety of measures to reduce the military and WMD threat in the constituent nations of the former Soviet Union. The CTR Program has funded over 800 bilateral military contacts between the U.S., Belarus, Kazakhstan, Russia, and Ukraine. In addition, these contacts were designed to promote demilitarization and defense reform, emphasize measures and programs to improve respective border patrols, and safeguard material and technologies related to WMD. The program has accomplished much in its first nine years and has played a substantive role in promoting global stability. The CTR Program has served to decrease tensions, reduce security threats, and enhance cooperation bilaterally between the United States and the countries involved. Additionally, the CTR Program represents less than one tenth of one percent of the DoD budget over the last eight years; clearly, it has achieved positive results at minimal cost.

How can the START I CTR model be applied to generic threat reduction programs around the world? First, each nation must have a clear idea of what it needs. For a successful program to enter into force, both sides must have clear ideas of what is needed. Nations cooperate when they feel they are obtaining something mutually beneficial. Second, the methods used to comply with agreements must be well funded. Governments of the nations involved must believe so strongly that compliance is in their best interests that they are willing to help fund the other side's compliance. Third, any new program should emulate the negotiated Memoranda of Understanding of the CTR Program, which has allowed the United States to provide funds, contractors, equipment, and facilities to other nations without diluting the funds through tariffs, taxes, and other administrative costs. Fourth, the nations involved must keep the objectives of the program in the forefront. The program can be endangered if it is hamstrung by ulterior motives such as increased access and intelligence collection. Finally, to negotiate and maintain good agreements, the nations involved must set good examples. Nations that are serious about cooperating on counter-proliferation must ensure that they exercise every measure internally to eliminate proliferation within their own borders.

Technology Transfer Controls

Technology security is aimed at protecting the technologies that are deemed vital to U.S. national security. The significance of any technology can usually be found in one of three particular areas. The first is the potential military leverage of the technology. There are other areas and reasons why technology is sometimes controlled. A great deal of money may have been invested in the technology causing a desire to preserve the investment. Another reason may be to preserve long-term competitiveness in the world marketplace. Various licensing programs, both for military hardware and for civilian or dual use technologies, sometimes serve market reasons much more often than national security reasons.

A shift in technology spending occurred after the period 1945-1985, when defense spending fueled a large part of the growth in U.S. technology. DoD spent billions of dollars developing new systems and new technologies, and very often, these additionally had major civilian implications. A good example is the Automated Machine Tool, which grew out of a DoD ManTech program in the 1950s and revolutionized manufacturing as a result. Since 1985, technology growth has been funded much more by private investment and commercial activity than it has by DoD. Consequently, technologies are more widely available and the leverage by the government over those technologies has been reduced.

Fundamentally, a Technology Security Program (TSP) can reduce threats if those threats rely upon using advanced technologies and the associated derived products. There are certain types of WMD and proliferation threats that will not benefit from a TSP. The SCUD missile, a 50-year-old design, is an example. It uses no high technology and there's no practical way to control it via a Technology Security Program.

A credible TSP should be focused on real military requirements and on meaningful targets. Credibility is one of the key issues that face those that try to use export controls to deal with proliferation. Secondly, a TSP must be disciplined, requiring that everyone follows the same set of rules. Finally, the TSP must be demonstrably effective in reducing the threat.

In today's world, a TSP must be linked to geo-strategic considerations. For example, the U.S. maintains and protects the vital sea lines of communication, particularly in the Pacific but in the Persian Gulf as well. By keeping those transit areas open, the U.S. also helps ensure the flow of energy.

A sound Technology Security Policy is a form of conflict prevention because it can slow the growth of a potential adversary's military capability and preclude certain military adventures. For example, if China feels that it is strong enough to invade Taiwan and does so, then that impacts the U.S. role in the Pacific and leads to conflict. However, the U. S. does not appear to have Technology Security Policy in place to deal with the threat to U.S. interests in the Pacific, or specifically, to the emerging Chinese threat. The U.S. approach to controlling technologies has been chaotic, confused and inconsistent. A less confusing approach based on a coherent policy to which the U.S. and its allies can agree is required. The existing Wassenaar Arrangement is supposed to coordinate export controls but it has not evidenced anything useful. Additionally, logical internal U. S. policies are needed across the boardæexport controls or controls over U.S. national laboratories.

To construct a useful Technology Security Policy, geopolitical requirements must be considered. A military assessment is one of those requirements. It provides an understanding of how the growth of a potential adversary impacts U.S. forward strategy, which in the

Pacific region is lacking. The domestic impact, such as on missile defenses, is also important.

Can the U.S. execute a Technology Security Policy in an environment that's largely characterized in the past few years by a cooperative and economic approach? It may be possible but it will hinge upon the availability of leadership. The U.S. is at a critical juncture where, if things continue to occur in the same chaotic manner and process, the U.S. will find itself in great difficulty, not only in the Pacific, but in many other parts of the world. One piece of the solution is to try to implement a program that will restrict the transfer of technologies that could provide potential adversaries, capabilities that are dangerous to U.S. national security.

DOE Threat Reduction Programs

The Department of Energy (DOE) Expanded Threat Reduction Initiative (ETRI) is a U.S. government-wide effort to enhance collaboration with Russia and some other states of the former Soviet Union to improve security over nuclear materials, reduce quantities of nuclear materials and address the brain drain challenge.

ETRI, the umbrella under which many agencies are operating, has been in effect for approximately 18 months. One of the new areas under it is the Long-Term Russian Initiative (LTRI) which considerably increases the scale and nature of activities. This current $100M year program has two major components — the nuclear fuel cycle and the Russian nuclear infrastructure. What is significant in this new initiative is the effort to control the civilian side of the nuclear fuel cycle in Russia. Many CTR programs focus on military aspects. Under this initiative, DOE is trying to engage Russia in a 20 year freeze on further separation of civil plutonium (two tons per year), which is currently being negotiated.

The moratorium on reprocessing — separation of plutonium — would be linked with the U.S. offer to help Russia build spent fuel storage facilities. The R&D program, looking at proliferation resistant fuel cycles, ought to be linked to full compliance by Russia. Under the Material, Protection, Control and Accounting (MPC&A) Program, $30M has been allocated for work to secure nuclear materials and to pursue the accelerated closure of certain nuclear facilities in Russia.

Some other anticipated DOE programs include work with the Russian Navy to consolidate fresh fuel, which possess proliferation risks if security is not maintained. A program to consolidate small quantities of material (from numerous small institutes) throughout Russia at one or two locations will be initiated.

The Department of Energy activities for FY 2001 include about $915M for all threat reduction programs. It is a very substantial part of the DOE budget. In comparison, the DOE Defense Program budget to maintain nuclear weapons stockpiles is about $4.5B.

There are roughly 50 nuclear sites in Russia and some of the surrounding states. The work outside of Russia has been completed and now DOE is concentrating on the Russian problem in considerable depth. Not only is DOE trying to help Russia secure existing nuclear materials but it has also initiated substantial programs to eliminate and stop further accumulation of these materials. DOE has to build numerous facilities, working with allies and other interested countries to help finance this multibillion-dollar collaborative effort.

Another program that is funded at a much lower level but has a great impact is the Second Line of Defense. The first line of defense is to secure nuclear materials at facili-

ties. The Second Line of Defense is to ensure that these nuclear materials do not leak out of Russia's borders. Outside of Russia, DOE also has a substantial program.

Another effort at the Department of Energy involves purchasing weapons grade uranium. It is blended in Russia to non-weapons grade, leaves Russia, and is used in nuclear power plants. A private organization is purchasing the material. To date, nearly 80 tons of weapons grade materials have been down-blended.

Finally, the Initiatives for Proliferation Prevention (IPP) and Nuclear Cities Initiative (NCI) programs address Russian brain drain issues. Under NCI, DOE is seeking to accelerate the closure of Russian nuclear facilities. Under IPP, DOE works with individual scientists, or groups of scientists, encouraging them to develop existing technologies and to commercialize them in Russia, similar to U.S. methods. To date, about 7,600 weapons scientists at 170 institutes — nuclear, biological and chemical — support nearly 400 non-military projects. DOE is very proud that this engagement with Russia is now actually resulting in some tangible outcomes.

Summary

The plenary session discussed the environment in which proliferation of WMD and the technologies associated with the production and development of WMD by State and Non-State actors has evolved to the point that traditional tools used to constrain the leakage to rogue actors are less effective. Third and fourth generation proliferators are now emerging as suppliers of WMD and the myriad WMD technologies will undoubtedly become increasingly proliferated. Enormous energy and resources are being expended on the prevention (non-proliferation) side while concurrently planning for the worst. Working together, the major powers must develop the requisite tools and synergistic programs to do a better job of anticipating and influencing the behavior of both State and Non-State Actors. This will affect international postures by moving from one of reaction to one of prevention, by having international capabilities that are visible and enforced. Current international arrangements are not effective; however, the outlook is not necessarily entirely bleak. Looking at some of the proliferating actors, there are diplomatic trends that evidence the easing of proliferation pressures to some degree. However, the future threat will undoubtedly be worse and nations should be prepared.

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Abbreviations and Acronyms

ABM	Anti-Ballistic Missile
ACDA	Arms Control and Disarmament Agency
ACRS	Arms Control and Regional Security
AG	Australia Group
AHG	Ad Hoc Group
APL	Anti-Personnel Landmine
ASAT	Anti-Satellite
ASEAN	Association of South East Asian Nations
ATBM	Anti-Tactical Ballistic Missile
BL	Biosafety Level
BW	Biological Weapon
BWC	Biological Weapons Convention
CBM	Confidence Building Measures
CBW	Chemical and Biological Weapons
CCW	Convention on Certain Conventional Weapons
CEO	Chief Executive Officer
CFE	Conventional Armed Forces in Europe Treaty
CINC	Commander-in-Chief
COTS	Commercial Off-the-Shelf
CPRC	Counterproliferation Program Review Committee
CSBM	Confidence and Security Building Measures
CTBT	Comprehensive Nuclear Test Ban Treaty
CTR	Cooperative Threat Reduction
CVR	Center for Verification Research

CW	Chemical Weapon
CWC	Chemical Weapons Convention
DCI	Director of Central Intelligence
DoD	Department of Defense
DTRA	Defense Threat Reduction Agency
EIF	Enter(y)(ed) Into Force
ETRI	Expanded Threat Reduction Initiative
EU	European Union
FMCT	Fissile Material Cut-Off Treaty
FOC	Friend of Chair
FRG	Federal Republic of Germany
FSU	Former Soviet Union
HEU	Highly Enriched Uranium
IAEA	International Atomic Energy Agency
IANSA	International Action Network on Small Arms
IC	Intelligence Community
ICBL	International Campaign to Ban Landmines
ICBM	Intercontinental Ballistic Missile
IMS	International Monitoring Systems
INF	Intermediate-Range Nuclear Forces Treaty
IO	Information Operations
IPP	Initiatives for Proliferation Prevention
ISTC	International Science & Technology Center
IW	Information Warfare
LDC	Lesser Developed Countries
LTRI	Long-Term Russian Initiative

MIRV	Multiple Independently Targetable Reentry Vehicle
MOD	Ministry of Defense
MPC&A	Material, Protection, Control & Accounting
MT	Metric Ton
MTCR	Missile Technology Control Regime
NAC	New Agenda Coalition
NAM	Non-Aligned Movement
NAS	National Academy of Sciences
NATO	North Atlantic Treaty Organization
NBC	Nuclear, Biological and Chemical
NCI	Nuclear Cities Initiative
NWFZ	Nuclear Weapons Free Zone
NGO	Non-Governmental Organization
NMD	National Missile Defense
NPACTWG	Nonproliferation and Arms Control Technology Working Group
NPT	Nuclear Nonproliferation Treaty
NSG	Nuclear Supplier Group
NTM	National Technical Means
OPCW	Organization for the Prohibition of Chemical Weapons
OSCE	Organization for Security and Cooperation in Europe
OSI	On-Site Inspection
PREPCOM	Preparatory Commission
REVCON	Review Conference
RMA	Revolution in Military Affairs
SA/LW	Small Arms and Light Weapons
SACEUR	Supreme Allied Commander, Europe

SAE	Strategic Arms Elimination
SAIC	Science Applications International Corporation
SALT	Strategic Arms Limitation Talks
SLBM	Submarine Launched Ballistic Missile
SSBN	Submarine, ballistic missile capable
SSN	Submarine, “fast attack” nuclear propulsion
START	Strategic Arms Reduction Treaty
TSP	Technology Security Program
TLE	Treaty Limited Equipment
TMD	Theater Missile Defense
U.N.	United Nations
UNGA	United Nations General Assembly
UNSC	United Nations Security Council
UNSCOM	United Nations Special Commission
U.S.	United States
VEREX	Verification Experts Group
WMD	Weapons of Mass Destruction
WMFZ	Weapons of Mass Destruction Free Zone
WEU	Western European Union (?)